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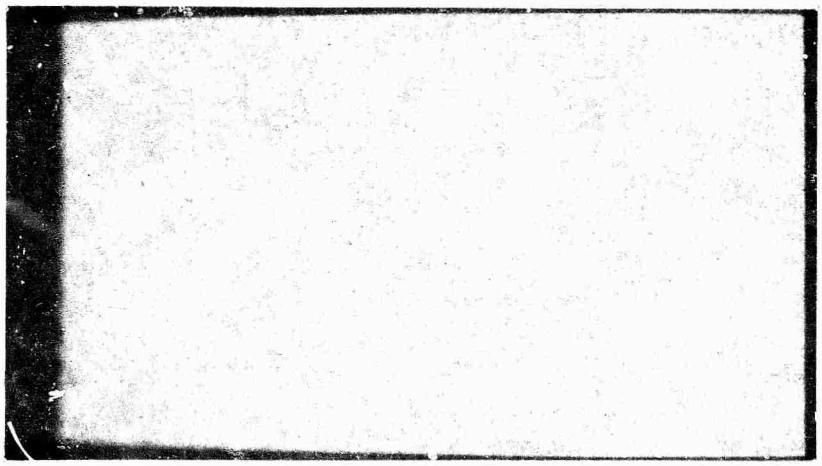
AUTHORITY

SAMSO, USAF ltr, 16 Aug 1973



MCDONNELL

194

Date 9 October 1967

Revised

FINAL REPORT

GEMINI B ANTENNA SYSTEM TESTING

Report TR 058-ADA.03 Model 195B

Contract No. FO 4695-67-0023

Laboratories: Instrumentation and Standards

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ABSTRACT

The purpose of these tests was to determine the radiation distribution of the nose stub antenna mounted on the Gemini B Spacecraft. Tests were performed with and without the nose fairing and ejection spring, at the VHF-Voice (296.8 MHz) and the VHF-Recovery Beacon frequencies (243.0 MHz).

Test tests were conducted at a range of 500 feet using the ground level range technique with the reflection level reduced to at least 40 db down.

The tests were conducted on a 1/3 scale model of the Gemini B Spacecraft at 729.0 MHz linearly polarized for the Recovery Beacon, and on a 1/3 scale model of the Gemini B Spacecraft and the (Model used in Laboratory was only a section 21 feet long, the actual laboratory is considerably larger) Manned Orbital Laboratory at 890.4 MHz left hand circularly polarized for the VHF-Voice and Recovery Beacon frequencies for a linear signal in horizontal (θ) and vertical (ϕ) polarizations.

The data results consists of Radiation Distribution Plots with information printed every two degrees of Theta and every two degrees of Phi with ± 0.5 db resolution, polar plots for principal plane cuts and roll cuts for every ten degrees of Theta with integration information for calculation of the isotropic level, and punched tapes. Contour plots were drawn from information obtained from the RDP's.

No conclusions are drawn; data is submitted for analysis.

1. INTRODUCTION

The purpose of these tests was to determine the radiation distribution of the Nose Stub Antenna on the Gemini B Spacecraft. In response to required parameters, the following test details were accomplished.

The VHF-Voice frequency, 296.8 MHz was run on the Gemini B with a section of Manned Orbital Laboratory, with and with the spacecraft nose fairing and ejection spring, for the left hand circular (LHC) polarization component.

The Recovery Beacon frequency 243.0 MHz was run on the Gemini B Spacecraft only, with and without the spacecraft nose fairing and ejection spring, for horizontal (θ) and vertical (ϕ) polarizations.

Complete sets of polar patterns with Radiation Distribution Plots (RDP) were recorded, isotropic levels calculated, and contour plots drawn from the RDP's. Principal plane polar patterns were also to be made on Gemini B and Manned Orbital Laboratory for vertical (ϕ) and horizontal (θ) polarizations at VHF-Voice and Recovery Beacon frequencies. The patterns, RDP's and Contour plots were made with respect to the IRIG Standard Coordinate System.

Tests were run at the Outdoor Microwave Antenna Range by the Instrumentation and Standards Laboratories during the period 6 June to 20 June 1967.

2. DESCRIPTION

The antenna tested was a 1/3 scale model of the nose stub located on forward end of the 1/3 scale model of the Gemini B Spacecraft.

The stub was tested with the Gemini B and Manned Orbital Laboratory (MOL) for the VHF-Voice frequency and with the Gemini B only for the Recovery Beacon Frequency. In each of these conditions, tests were run with and without the nose fairing and ejection spring.

The model fairing is a protective fiberglass cover with a fiberglass and Teflon protrusion that encloses the nose stub antenna. The ejection spring consists of an inner and outer spring and is used to jettison the nose fairing after obtaining orbit.

Photographs appear on pages 16 and 17.

3. FACILITIES

The radiation tests were conducted at the Outdoor Microwave and Antenna Range located at St. Charles, Missouri. The range has a 1500 foot graded and mowed area with 500 feet of concrete ramp.

The Gemini B Spacecraft was mounted on a 24 foot fiberglass model positioner mast at a distance of 500 feet from the receiving antenna, and the Gemini B with the Manned Orbital Laboratory was supported at the same distance by a fabricated structure shown on page 14. In both cases Radio Frequency absorbing material (B. F. Goodrich type VHP/18) was placed on the base of the positioner to minimize reflections.

4. TEST SETUP AND PROCEDURE

For simplifying data identification, configuration members were assigned to the required combinations of nose condition (with or without fairing), frequency, or in the case of principal planes, polarization. Configurations are described on pages 8 and 9.

For this testing the 1/3 scale Nose Stub Antenna mounted on the 1/3 scale Gemini B model spacecraft was used as the transmitting antenna. For the receiving antenna, a turnstile was used. The reason for this type of transmit and receive arrangement was to minimize losses in the return cable to the recording equipment.

The test frequencies were 890.4 MHz for the VHF-Voice and 729.0 MHz for the Recovery Beacon. These were the 1/3 scale frequencies.

Prior to running patterns on the nose stub antenna, a field probe of the test aperture was made and the reflections were shown to be at least 40 db down.

After setting up for the LHC polarization, a linear antenna (log periodic) was rotated through 360 degrees of ϕ at a θ angle of zero degrees to assure the circularity of the receiving turnstile antenna. After proving the circularity of the receiving antenna, left hand and right hand helixes were used to prove the proper polarization sense before actual testing was begun.

The patterns were measured using the IRIG Standard Coordinate System. Location of point p'y ($\phi = 0$, $\theta = 90^\circ$) is shown in sketch on page 12. The results were printed on the RDP. Roll patterns were taken every two degrees of Theta and the printout was made for every one db relative signal strength level with a resolution of plus or minus 0.5 db.

The printed out polar patterns consisted of the principal planes plus a roll pattern for every ten degrees. Roll patterns were also integrated for the determination of the isotropic level by the pattern integration method.

5. TEST RESULTS

Test results data is included on pages tabulated below.

The patterns appear on the following pages.

CONFIGURATION NUMBER	PAGES
I	35 through 55
II	57 through 77
III	GBQ Tests *
IV	GBQ Tests *
V	GBQ Tests *
VI	GBQ Tests *
VII	79 through 81
VIII	82 through 84
IX	85 through 87
X	88 through 90
XI	91 through 132
XII	134 through 175

Isotropic calculations appear on pages 56, 78, 133, and 176.

RDP plots appear on pages 28, 29, 30, 31, 32, and 33.

Contour plots appear on pages 22, 23, 24, 25, 26, and 27.

*Configuration numbers III, IV, V, and VI were assigned to TR 058-ADA.04 which was run concurrently with tests reported herein.

6. DISCUSSION OF TEST RESULTS

The contour plots were drawn from the information recorded on the RDP's. From the different relative field strength bands, the contour was drawn corresponding to the center of the band. In deep null areas where the levels change rapidly, the levels may appear more than three dB apart since the drawing of so many contours would be impossible.

The actual numbers that appear on the contours were determined by rounding off the calculated isotropic levels to the nearest whole integer and this level would be the zero contour for the contour plot. Differences obtained from numbers larger than the isotropic level would appear as negative contours and numbers smaller as positive contours. The negative and positive contours consecutively indicate dB below and dB above the calculated isotropic level.

7. CONCLUSIONS

Data is submitted for analysis.

MAC 2310 (REV. 1 AUG 61)

TEST CONFIGURATION LOG

SHEET 1 OF 2

PROGRAM GEMINI B ANTENNA SYSTEM TESTING TR/ 058-ADA.03

DATE	NUMBER	CONFIGURATION DESCRIPTION	PATTERNS MADE
6 JUNE 67	I	VHF VOICE FREQ. W/O NOSE FAIRING. LEFT-HAND C.P. RECEIVING ANTENNA.	PRINCIPAL PLANE CUTS. Θ CUTS 0° TO 180°. RDP & TAPE. CIRCULARITY CUT.
6 JUNE 67	II	VHF VOICE FREQ. W/NOSE FAIRING. LEFT-HAND C.P. RECEIVING ANTENNA.	PRINCIPAL PLANE CUTS. Θ CUTS 0° TO 180°. RDP & TAPE.
12 JUNE 67	VII	VHF VOICE FREQ. W/O NOSE FAIRING. LINEAR POLARIZED RECEIVING ANTENNA. HORIZONTAL.	PRINCIPAL PLANE CUTS.
12 JUNE 67	VIII	VHF VOICE FREQ. W/O NOSE FAIRING. LINEAR POLARIZED RECEIVING ANTENNA. VERTICAL.	PRINCIPAL PLANE CUTS.
12 JUNE 67	IX	RECOVERY BEACON W/O NOSE FAIRING. LINEAR POLARIZED RECEIVING ANTENNA. HORIZONTAL	PRINCIPAL PLANE CUTS.
12 JUNE 67	X	RECOVERY BEACON W/O NOSE FAIRING. LINEAR POLARIZED RECEIVING ANTENNA. VERTICAL	PRINCIPAL PLANE CUTS.

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PAGE 8
REPORT TR 058-ADA.03
MODEL 195B

MAC 2310 (REV 1 AUG 61)

TEST CONFIGURATION LOG

SHEET 2 OF 2

PROGRAM GEMINI B ANTENNA SYSTEM TESTING TR/■ 058-ADA.03

DATE	NUMBER	CONFIGURATION DESCRIPTION	PATTERNS MADE
14 JUNE 67	XI	RECOVERY BEACON W/O NOSE FAIRING. LINEAR POLARIZED RECEIVING ANTENNA.	HORIZONTAL: Θ CUTS 0° TO 180°. RDP & TAPE. PRINCIPAL PLANES. VERTICAL: Θ CUTS 0° TO 180° RDP & TAPE. PRINCIPAL PLANES.
16 JUNE 67	XII	RECOVERY BEACON W/ NOSE FAIRING. LINEAR POLARIZED RECEIVING ANTENNA.	HORIZONTAL: Θ CUTS 0° TO 180° RDP & TAPE. PRINCIPAL PLANES. VERTICAL: Θ CUTS 0° TO 180° RDP & TAPE. PRINCIPAL PLANES.

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PAGE 9
REPORT TR 058-ADA.03
MODEL 195B

LIST OF EQUIPMENT AND INSTRUMENTS

Specific instruments and equipment employed in this test are listed below, and their applicable calibrations are filed and are available for inspection upon request.

Test Equipment or Instrument Name	Manufacturer's Name and Model Number	Serial Number or Laboratory Number
Position- Indicator Unit	Scientific Atlanta PI3-222	261
Positioner Control Unit	Scientific Atlanta PC4A	74
Logarithmic Potentiometer	Scientific Atlanta 1852-40	24
Linear & Sq. Rt. Potentiometer	Scientific Atlanta 4512	530
Crystal-Bolometer Amplifier	Scientific Atlanta CBA-21	343
Pen Function Amplifier	Scientific Atlanta PFA-25	134
Amplifier/Power Supply	Scientific Atlanta APR-20/30	383
Polar Recorder	Scientific Atlanta APR 34/1:36	119
Wide Range Receiver	Scientific Atlanta 402C	188
Model Positioner	Scientific Atlanta 5863	1
Tape Punch Recorder	Scientific Atlanta 1863	18
Tape Reader	Scientific Atlanta 1880	1430778
Integrator	Scientific Atlanta 6356	32

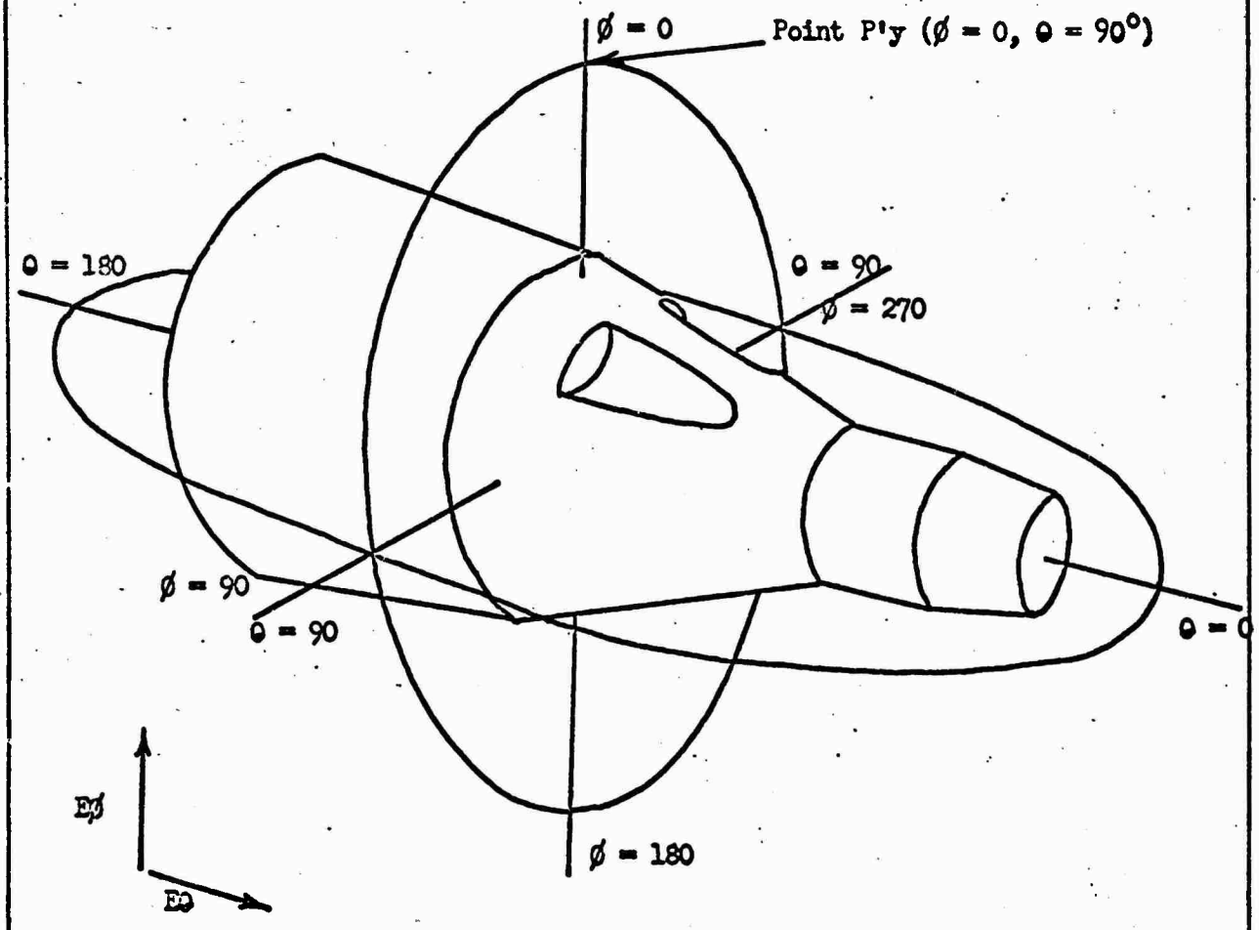
LIST OF EQUIPMENT AND INSTRUMENTS

Specific instruments and equipment employed in this test are listed below, and their applicable calibrations are filed and are available for inspection upon request.

Test Equipment or Instrument Name	Manufacturer's Name and Model Number	Serial Number or Laboratory Number
Radiation Distribution Printer	Scientific Atlanta 1803	30
Positioner Programmer	Scientific Atlanta 2004	54
Signal Generator	Hewlett Packard 8614A	343-00209
Signal Generator	Hewlett Packard 612A	1130
Power Meter	Hewlett Packard 430C	252-13036
Microwave Amplifier	Alfred 508	21
Hybrid	Narda 3032	767
Hybrid	Sage 751	500
Directional Coupler	Narda 3022	01146
Attenuator	Weinschell 210-20	90437
Typewriter	IBM	802717
Thermistor Mount	General Microwave N401A	2754
Polarization Positioner	Scientific Atlanta 5613-S36	124
Termination	Bird Termaline 80M	15948
Transit	Bruning 71	4895

GEMINI CO-ORDINATE SYSTEM

Used in MAC Radiation Laboratory



CROSSED LOG PERIODIC RECEIVING ANTENNA FOR GEMINI B TESTING

FIELD PROBE TEST SETUP AT 500 FOOT RANGE WITH GEMINI B
WITH MANNED ORBITAL LABORATORY (LOG PERIODIC TEST PROBE ANTENNA)

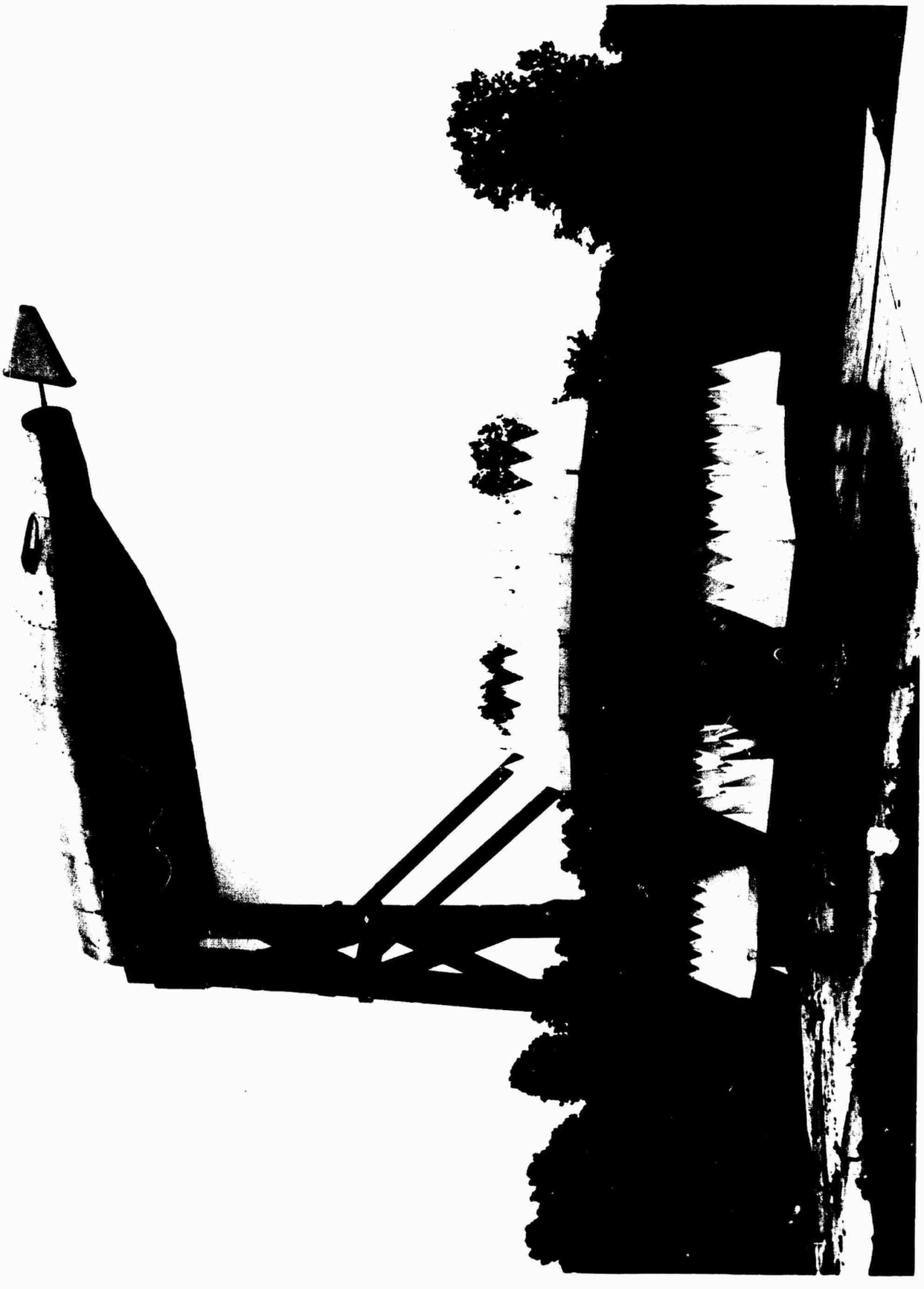


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PHOTO D4E-452479

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PAGE 15
REPORT 058-ADA.03
MODEL 195B

1/3 SCALE GEMINI SPACECRAFT SHOWING NOSE STUB ANTENNA WITHOUT NOSE FAIRING AND SPRING

DATE

PHOTO D/E-452475

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PAGE 16
REPORT 058-ADA.03
MODEL 195B

1/3 SCALE GEMINI SPACECRAFT SHOWING NOSE STUB ANTENNA
WITH THE FAIRING SPRING IN PLACE

NOSE OF 1/3 SCALE GEMINI B SPACECRAFT
WITH NOSE FAIRING AND SPRING IN PLACE

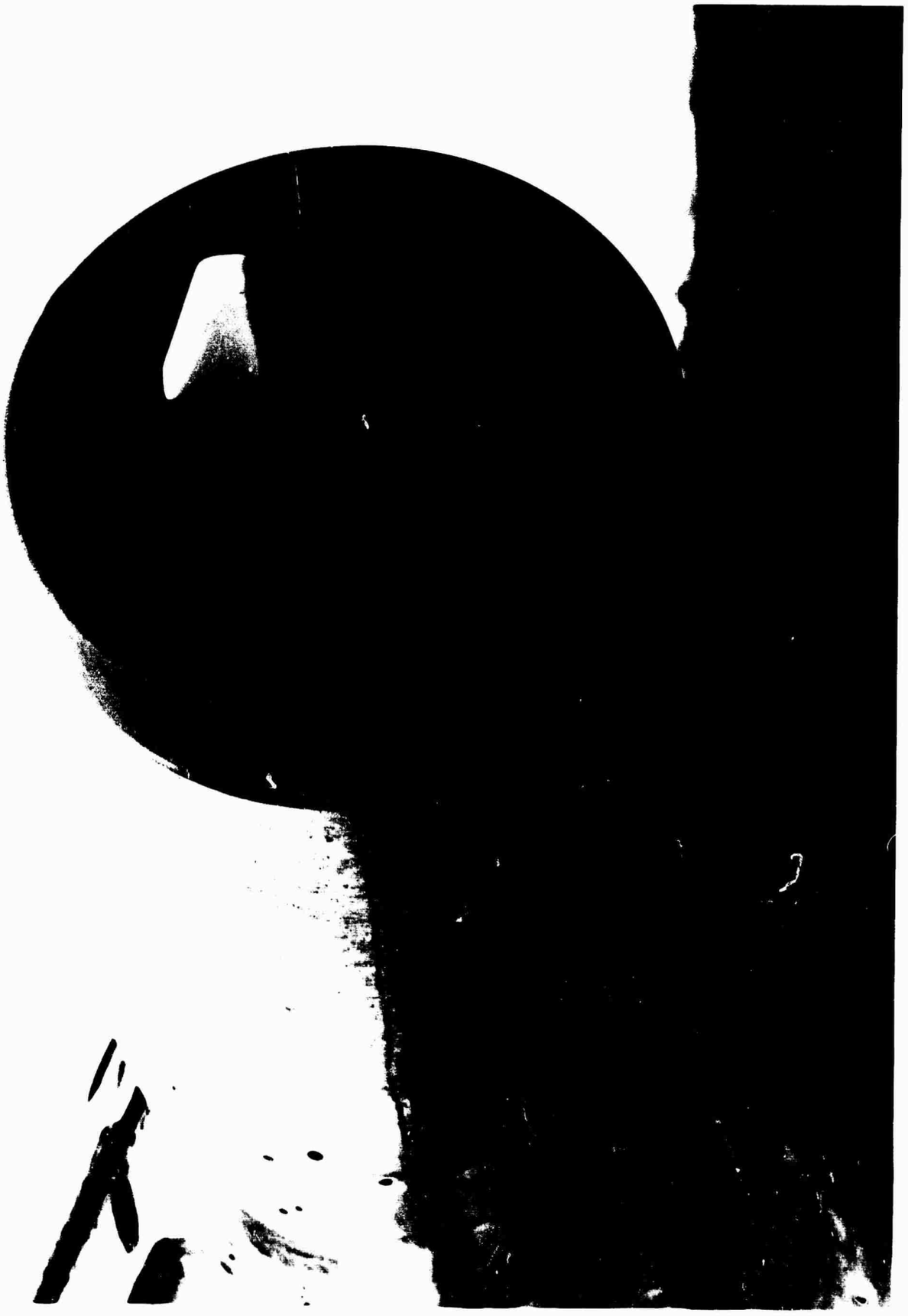

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PHOTO DAE-454264

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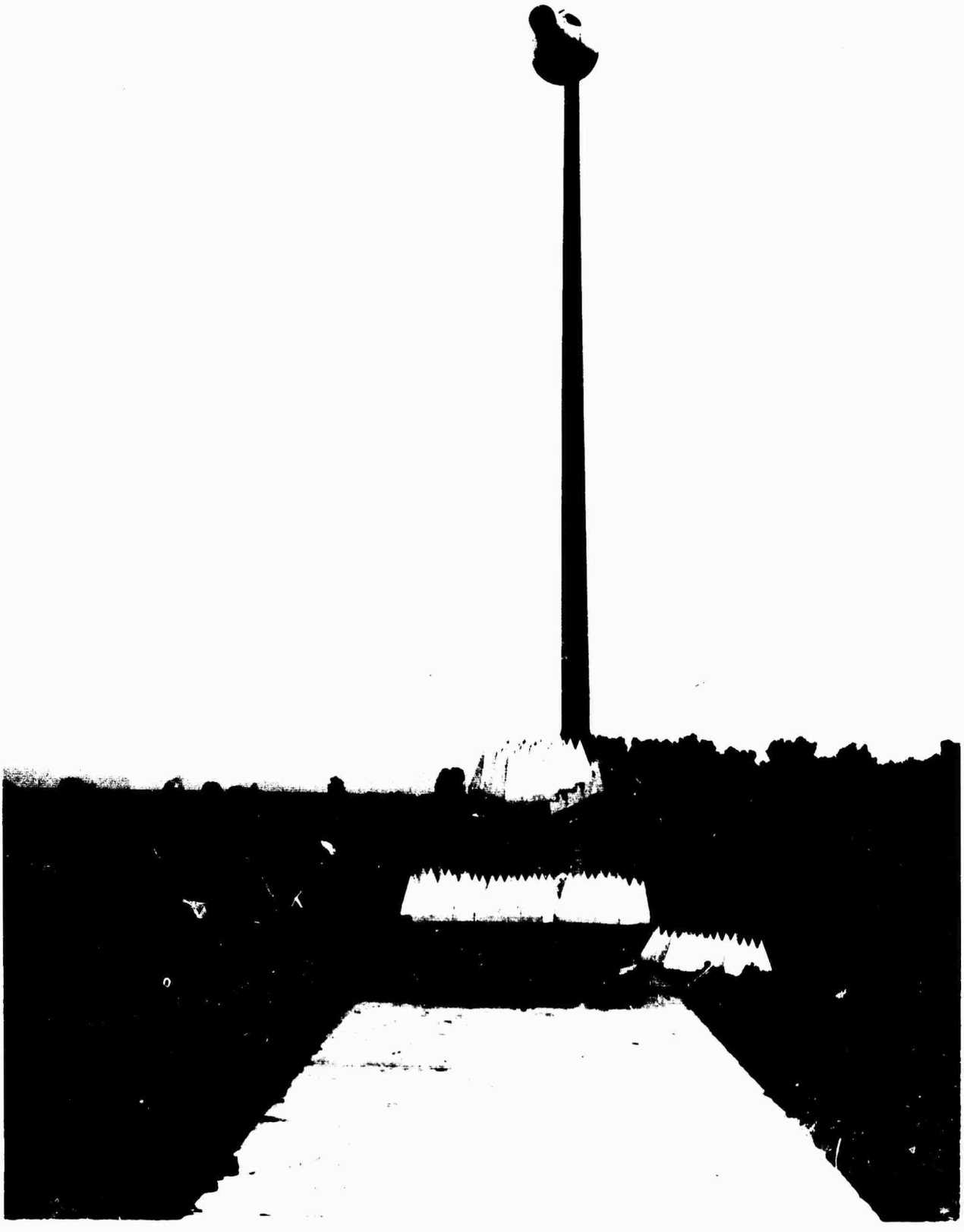
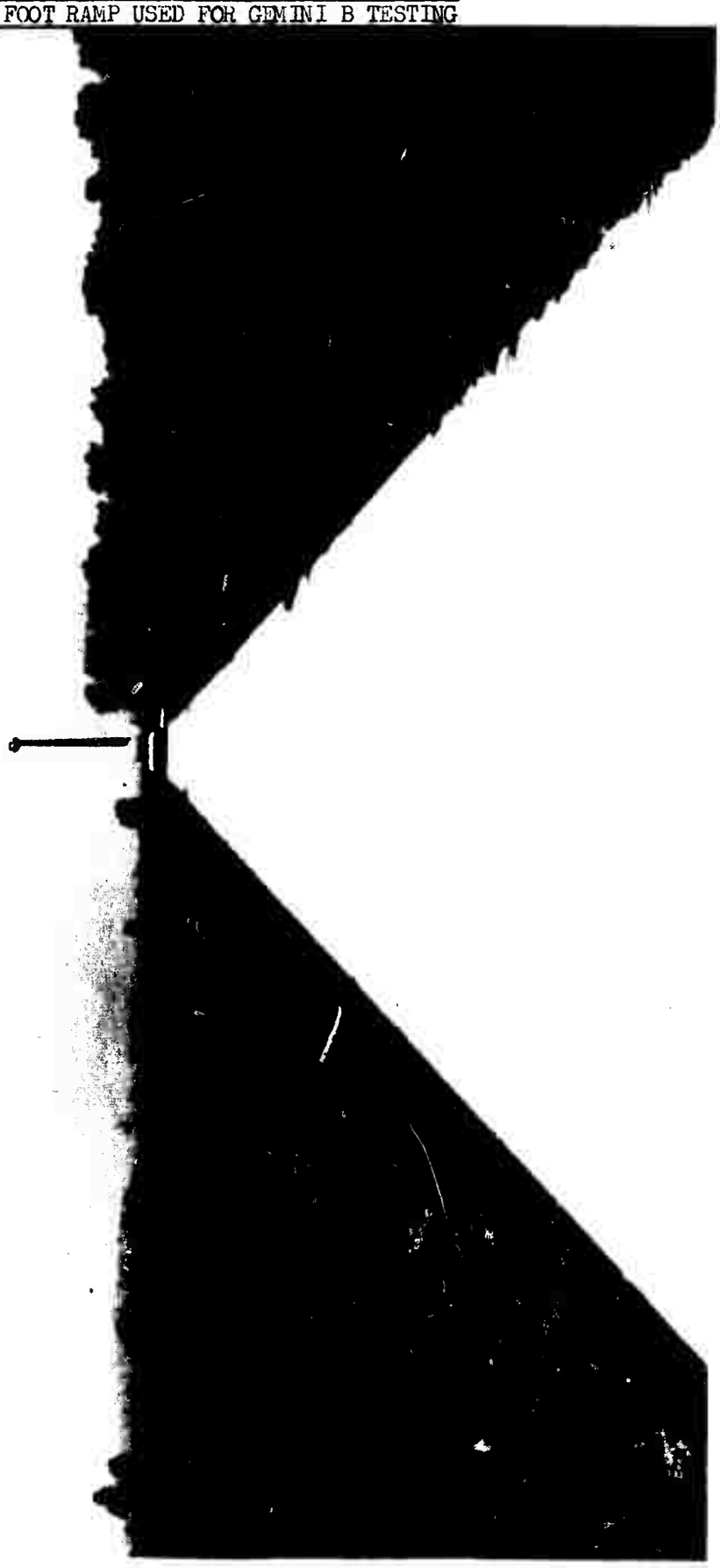
PAGE 18
REPORT 058-ADA.03
MODEL 195B

1/3 SCAIE GEMINI B SPACECRAFT ON 24 FOOT
MODEL MAST AT END OF 500 FOOT RANGE



1/3 SCALE GEMINI B SPACECRAFT SHOWN AT THE END OF THE 500 FOOT RAMP USED FOR GEMINI B TESTING



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PAGE 20

REPORT TR 058-ADA 23

MODEL 195B

ANTENNA: LOG PERIODIC (LOLLYPOP)

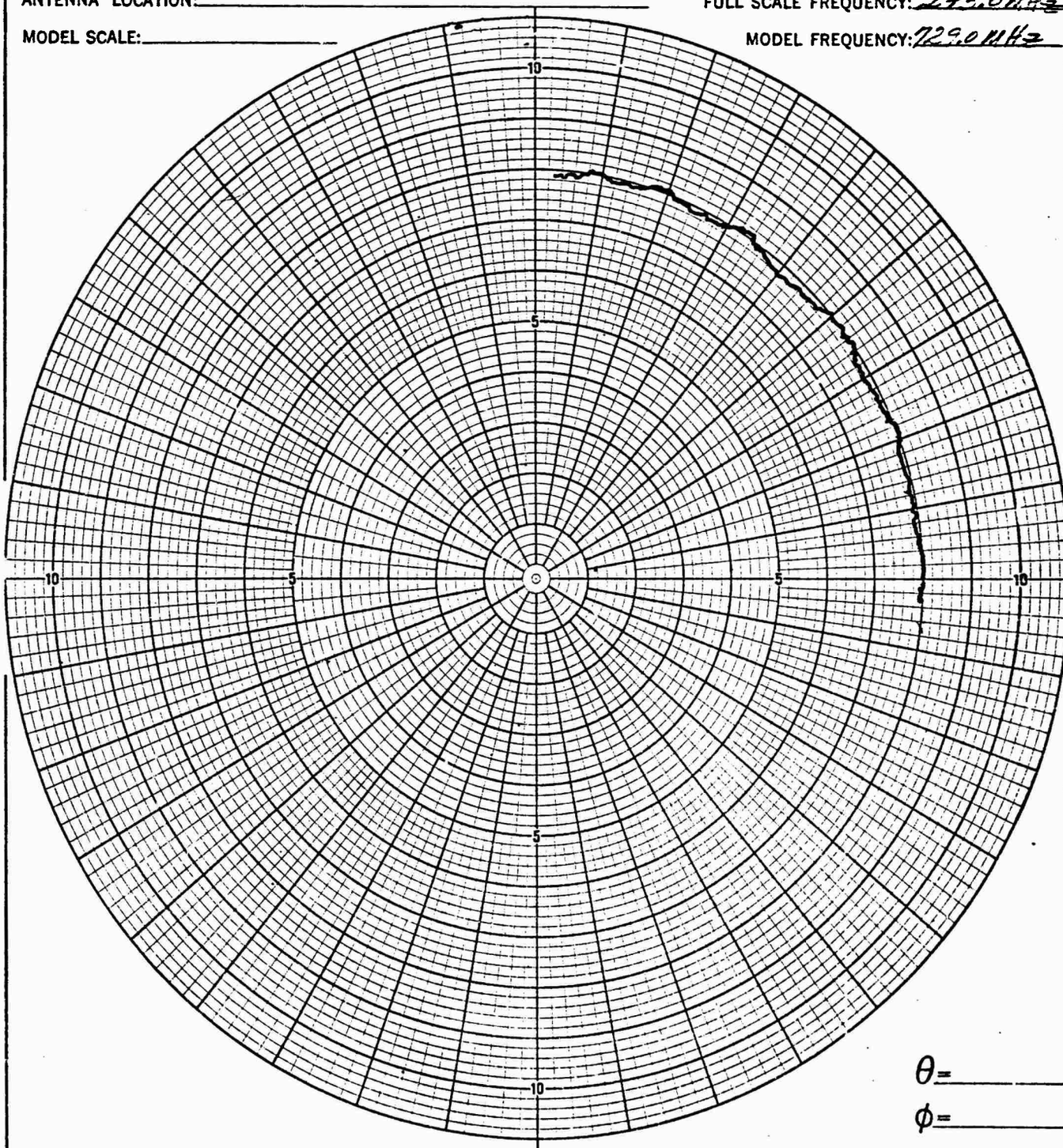
ANTENNA LOCATION: _____

MODEL SCALE: _____

VEHICLE: GEMINI P. W/MOL

FULL SCALE FREQUENCY: 243.0 MHz

MODEL FREQUENCY: 729.0 MHz



θ= _____

ϕ= _____

CONFIGURATION: W/ABS

REMARKS: VERTICAL FIELD PROBE

INTEGRATOR COUNT: _____

POLARIZATION: Eϕ ☐ Eθ ☐ OTHER: _____

PLOTTED IN: VOLTAGE (SQ. RT.) ☑ POWER (LIN.) ☐

TRANSMISSION DISTANCE: 500'

OBSERVER: EM&CS DATE: 5-6-67

DATE _____

REVISED _____

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PAGE 21

REPORT TR 058-ADA.03

MODEL 195B

ANTENNA: LOG PERIODIC (LOLLY POP)

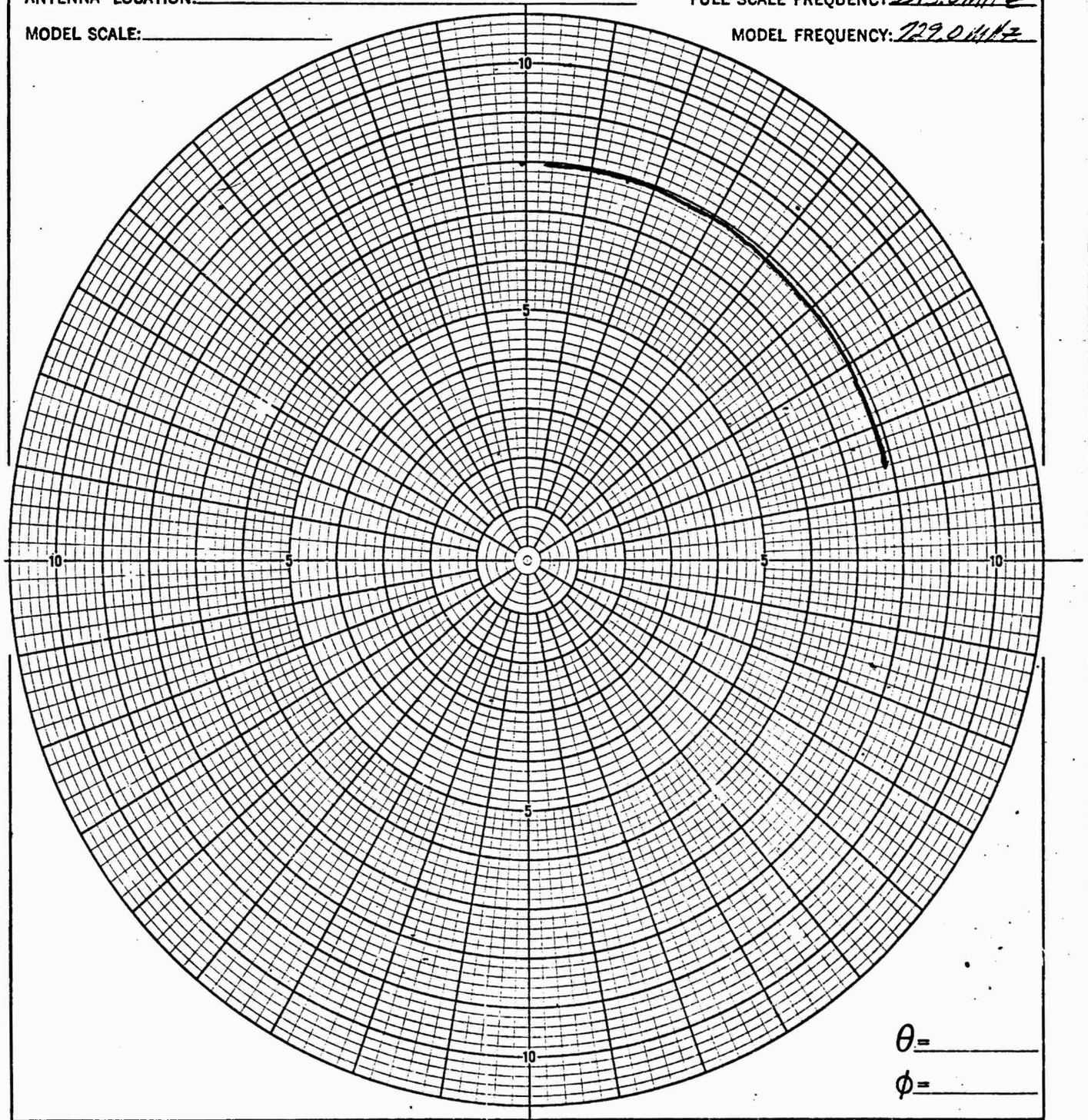
ANTENNA LOCATION: _____

MODEL SCALE: _____

VEHICLE: GEMINI B W/MOL

FULL SCALE FREQUENCY: 243.0 MHz

MODEL FREQUENCY: 729.0 MHz



θ = _____

φ = _____

CONFIGURATION: W/ABS

REMARKS: HORIZONTAL FIELD PROBE

INTEGRATOR COUNT: _____

POLARIZATION: Eφ ☐ Eθ ☐ OTHER: _____

PLOTTED IN: VOLTAGE (SQ. RT.) ☑ POWER (LIN.) ☐

TRANSMISSION DISTANCE: 500'

OBSERVER: EM & CS DATE: 5-6-67

MAC 231Y (REV. FEB. 65)

K & E CO.

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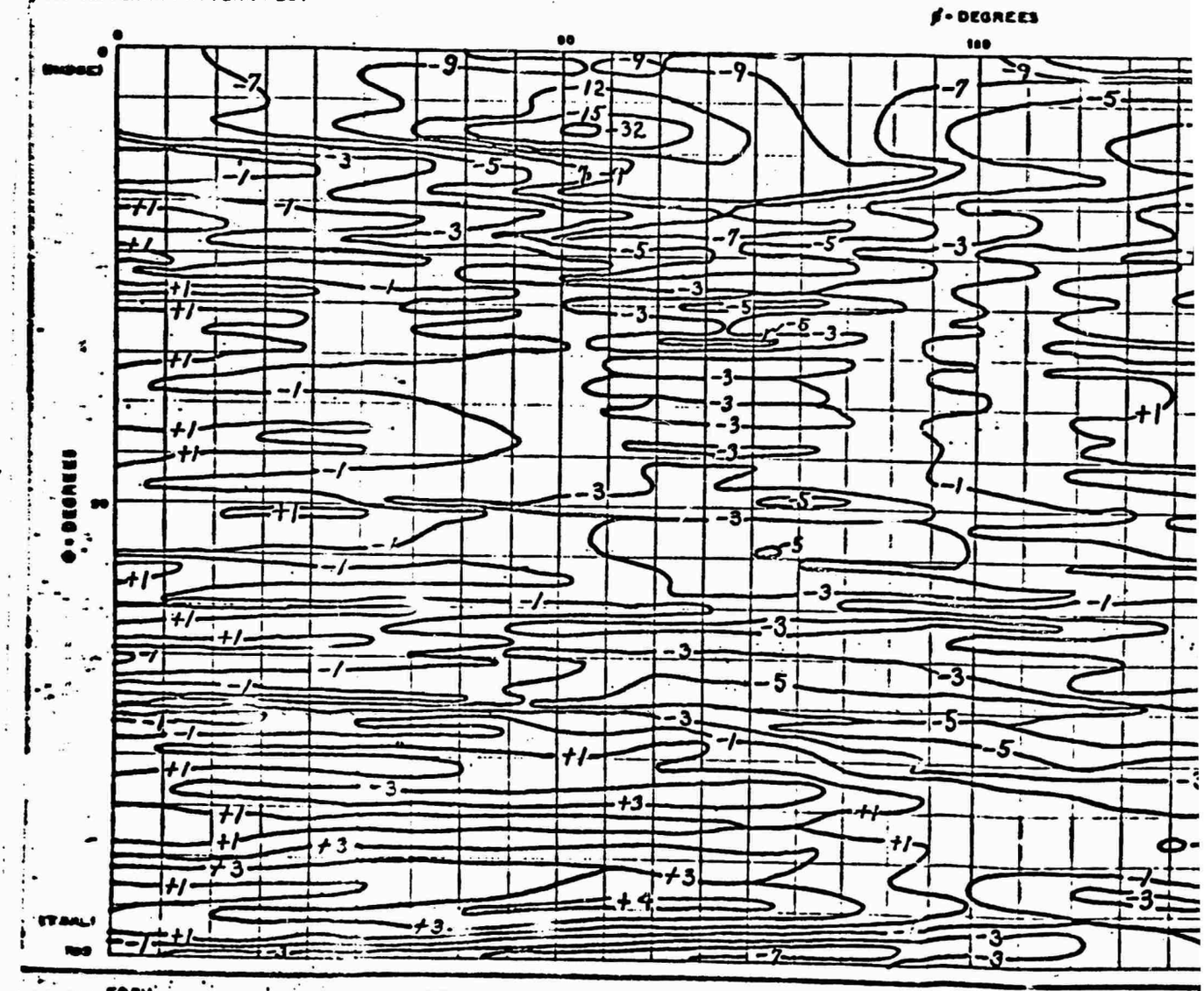
ANTENNA PATTERN

Nose Stub, Configuration I — Gemini B W/VOL

5. PROGRAM TITLE	6. PROGRAM REQUIREMENT CODE	7. SYSTEM CODE
Gemini B		

10. TEST CODE	11. [illegible] PAGE NO.	12. INSTRUMENTATION SYSTEM Comm. (VHF-Volco)

III. ANTENNA PATTERN PLOT



AFWTR FORM SEP 64 104

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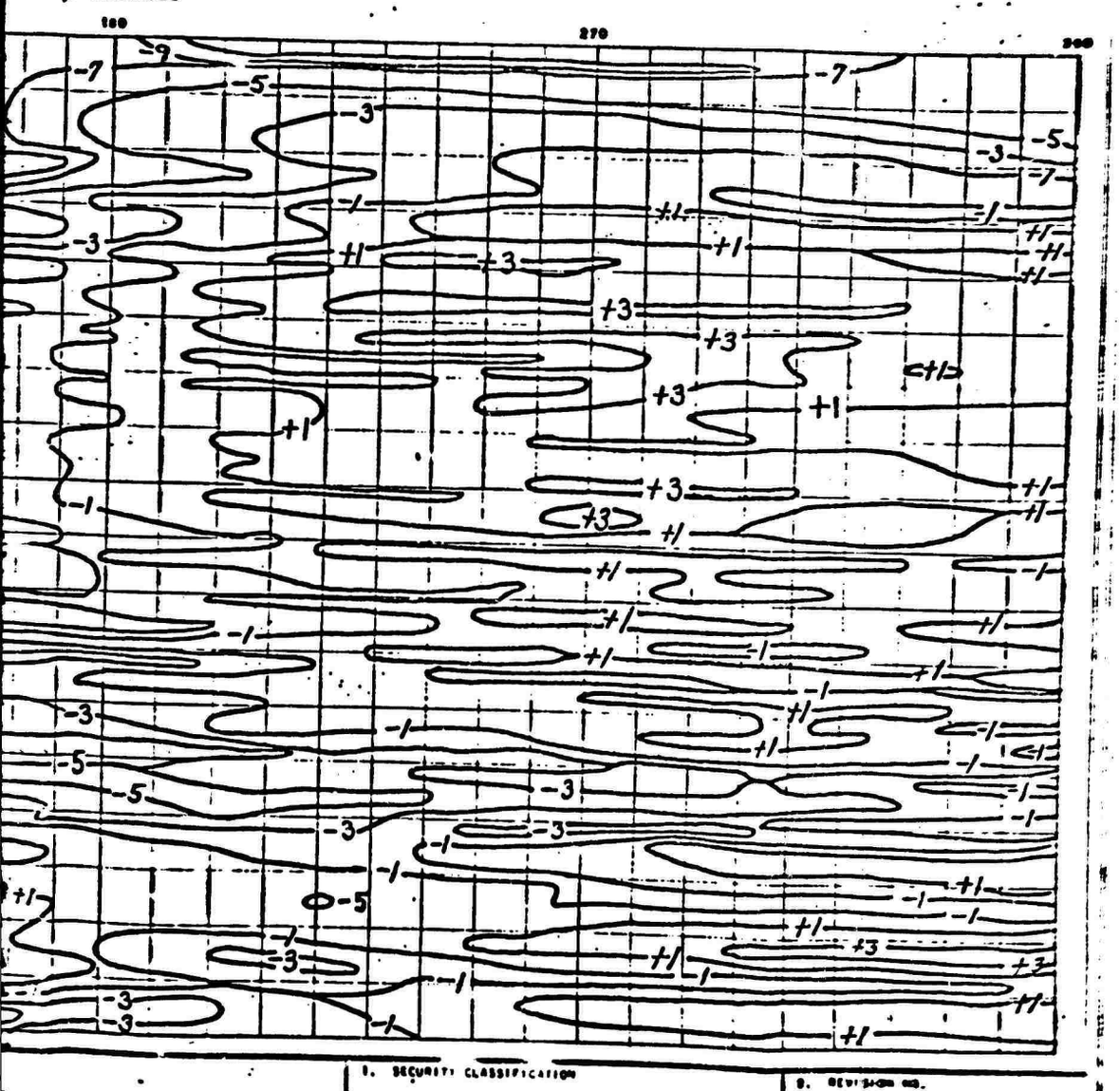
(REV 25 AUG 61)

	1. SECURITY CLASSIFICATION	2. PAGE 22
		3. DATE
	8. CONTRACTOR/CONTRACT NUMBER	4. SUPERSEDES PAGE(S) DATED
Comm. (VHF-Volco)		14. - 18. (SEE REVERSE SIDE OF FORM)



7. SECURITY CLASSIFICATION	8. REVISION NO.

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DATE _____

REVISED _____

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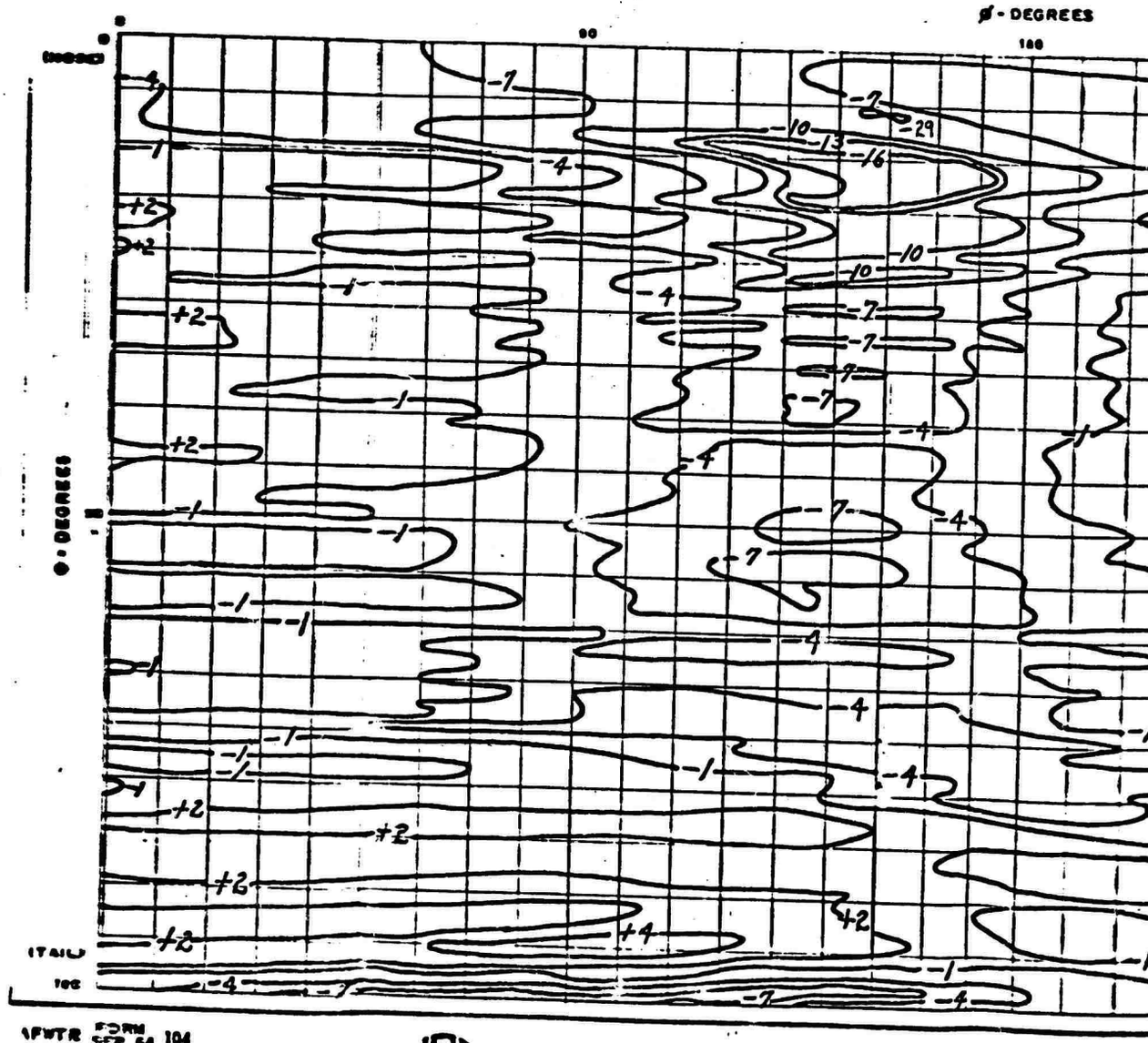
Nose Stub, Configuration II — ANTENNA PATTERN — Gemini B W/MOL

5. PROGRAM TITLE	6. PROGRAM REQUIREMENT CODE	7. SYSTEM CODE
Gemini B		

10. TEST CODE	11. PRD PAGE NO.	12. INSTRUMENTATION SYSTEM Comm. (VHF-Voi

13. ANTENNA PATTERN PLOT



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MAC 3140 (REV 25 AUG 61)

W/VOL		1. SECURITY CLASSIFICATION: U	2. PAGE 23
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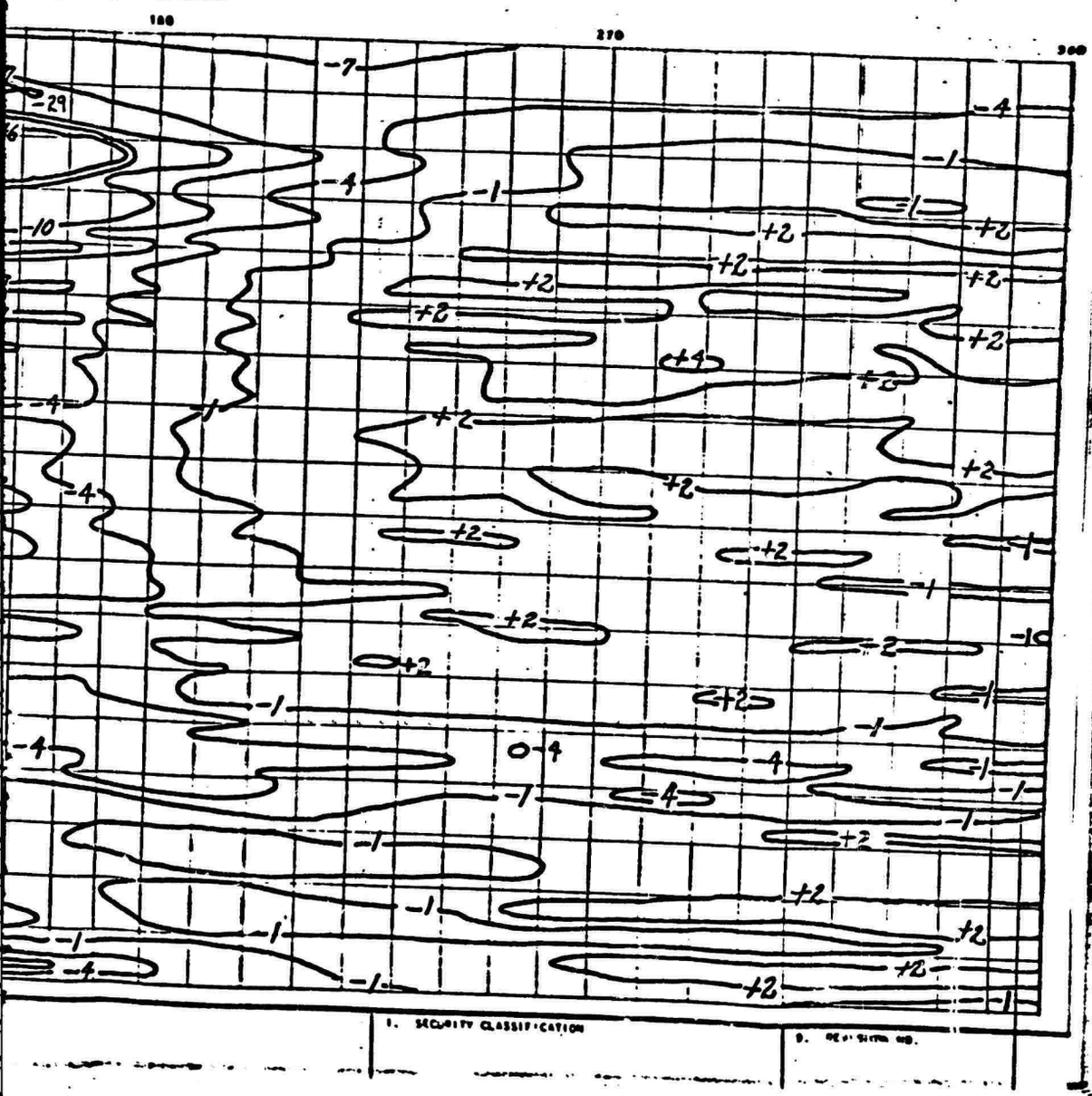
			DATED

SYSTEM Comm. (VHF-Voice) | 14. - 18. (SEE REVERSE SIDE OF FORM)



1. SECURITY CLASSIFICATION	9. REVISION NO.

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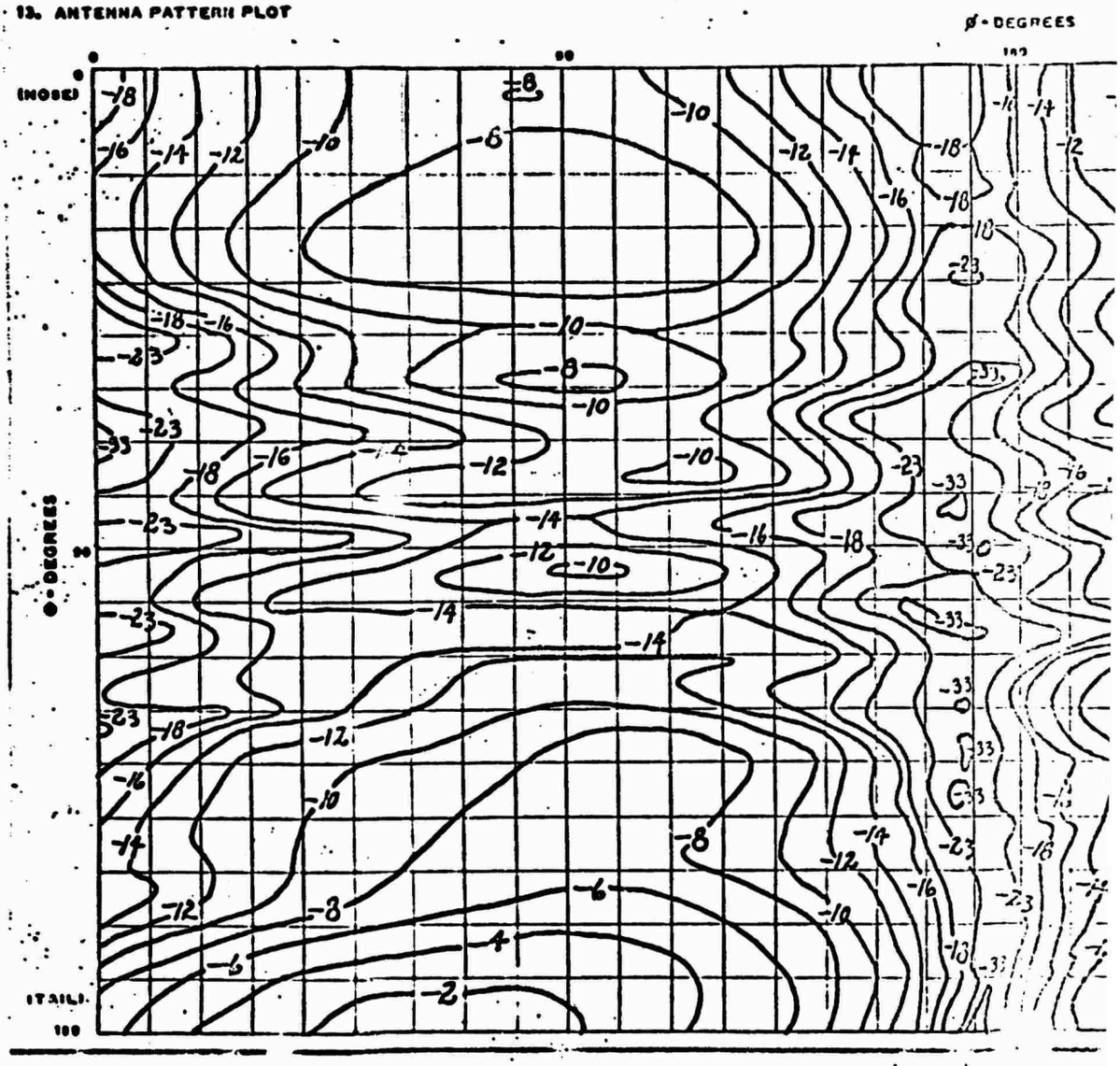
ANTENNA PATTERN

Nose Stub, Configuration XI — Spacecraft Only

5. PROGRAM TITLE	6. PROGRAM REQUIREMENT CODE	7. SYSTEM CODE
Gemini B		

10. TEST CODE	11. PROD PAGE NO.	12. INSTRUMENTATION SYSTEM Comm. (Recover

13. ANTENNA PATTERN PLOT



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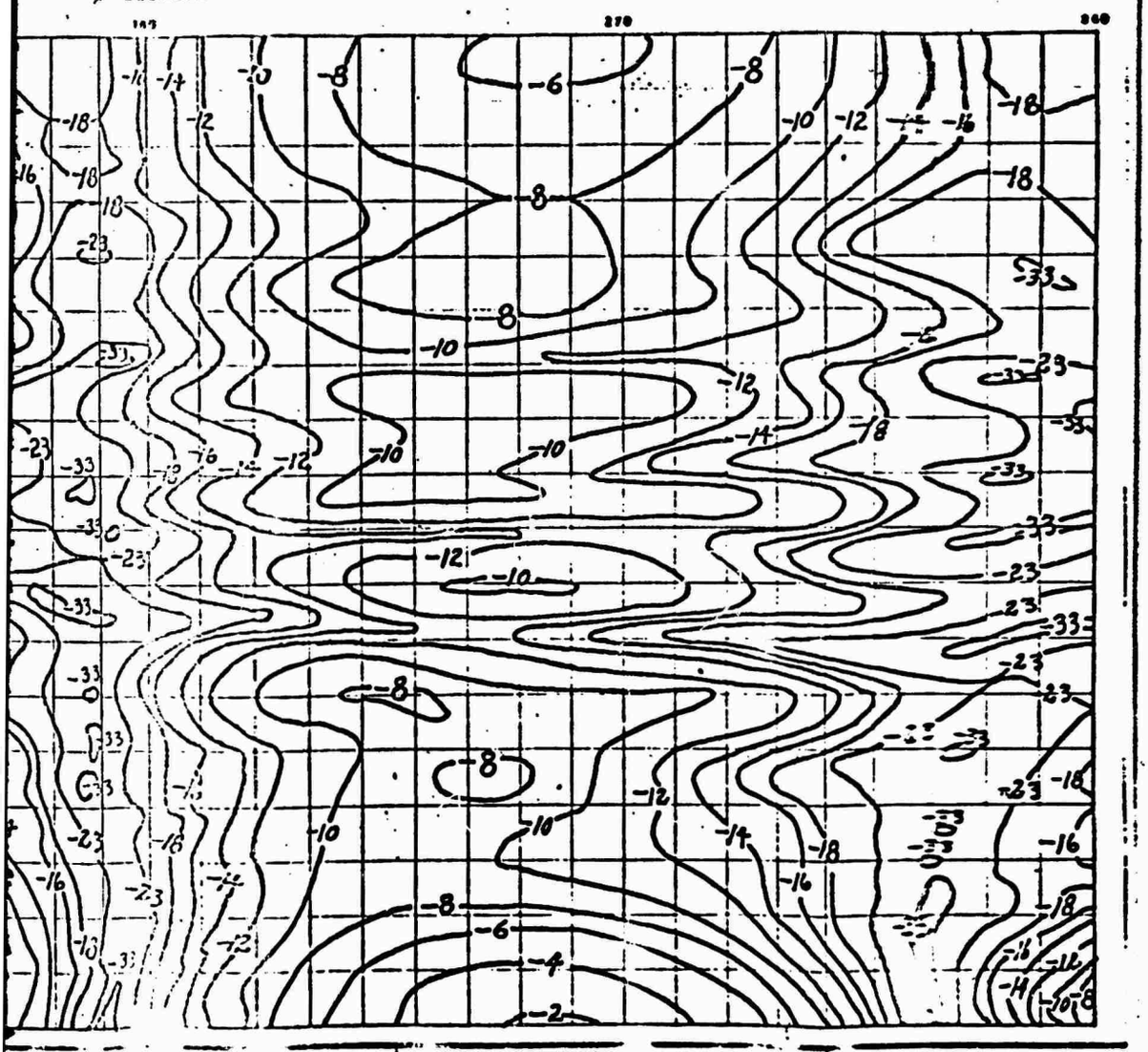
CODE 7. SYSTEM CODE	8. CONTRACTOR/CONTRACT NUMBER	
STEM Comm. (Recovery Beacon)	14. - 18. (SEE REVERSE SIDE OF FORM)	



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ST. LOUIS, MISSOURI

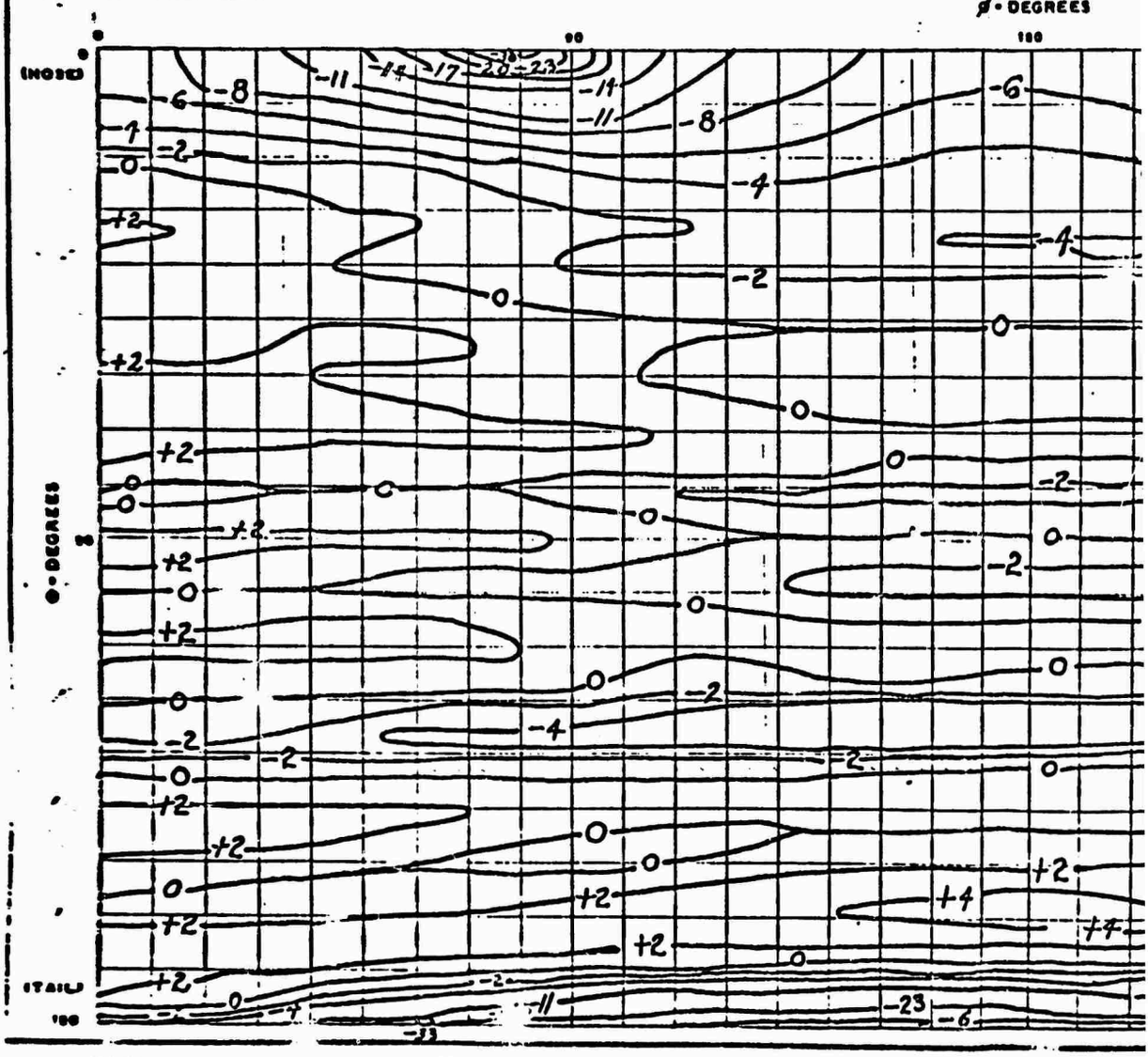
ANTENNA PATTERN

Nose Stub, Configuration XI — Spacecraft Only

5. PROGRAM TITLE	6. PROGRAM REQUIREMENT CODE	7. SYSTEM CODE
Gemini B		

10. TEST CODE	11. PROP PAGE NO.	12. INSTRUMENTATION SYSTEM Comm. (Recover

13. ANTENNA PATTERN PLOT



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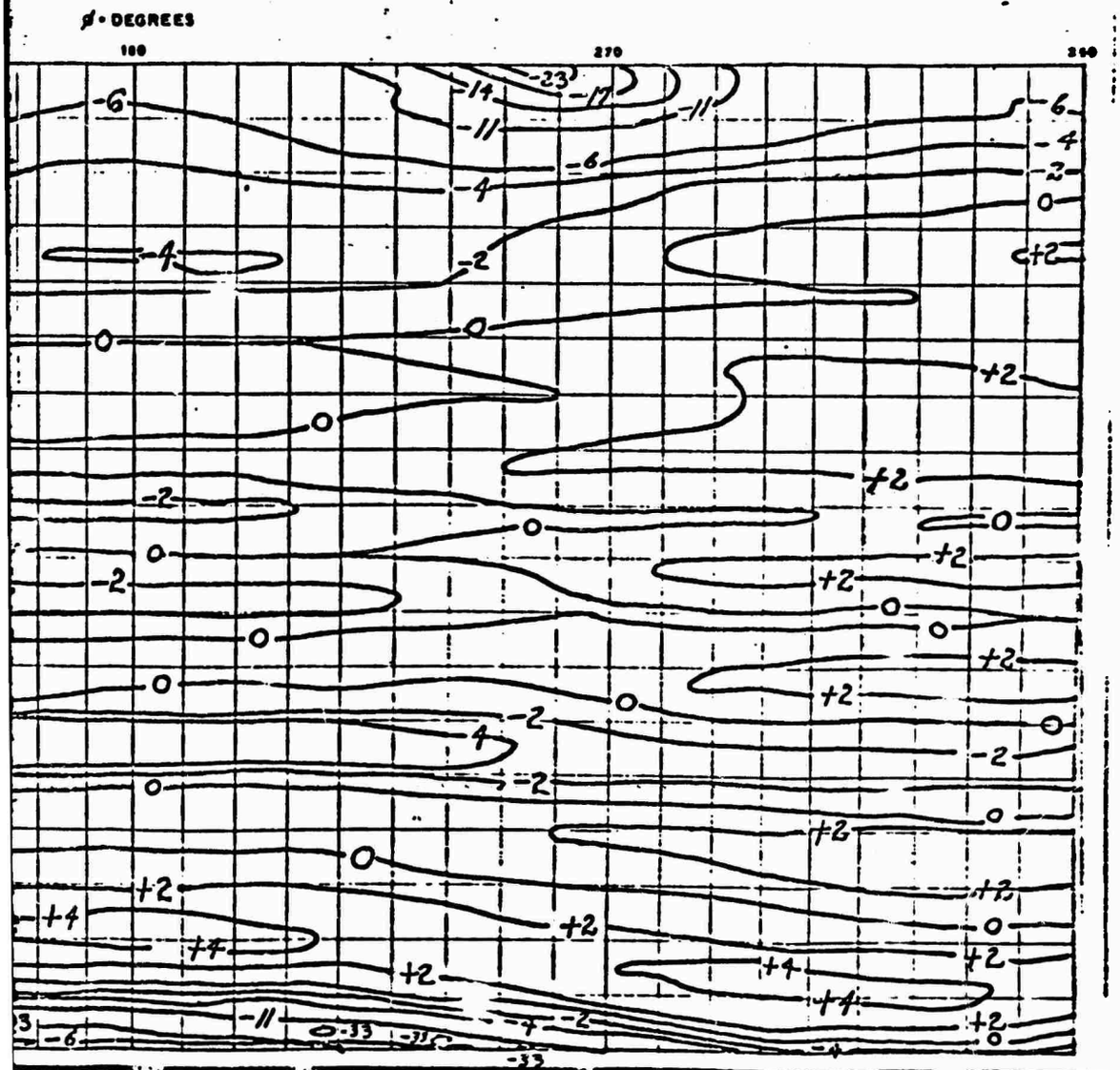
MAC 3180 (REV 33 . . 3 64)

t Only	8. SECURITY CLASSIFICATION: U	2. PAGE 25 3. DATE 4. REPLACES PAGE(S) DATED
6. SYSTEM CODE	8. CONTRACTOR/CONTRACT NUMBER	

TEM Comm. (Recovery Beacon) | 14. - 18. (SEE REVERSE S L OF FORM)



	7. SECURITY CLASSIFICATION	9. REVISION NO.

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DATE

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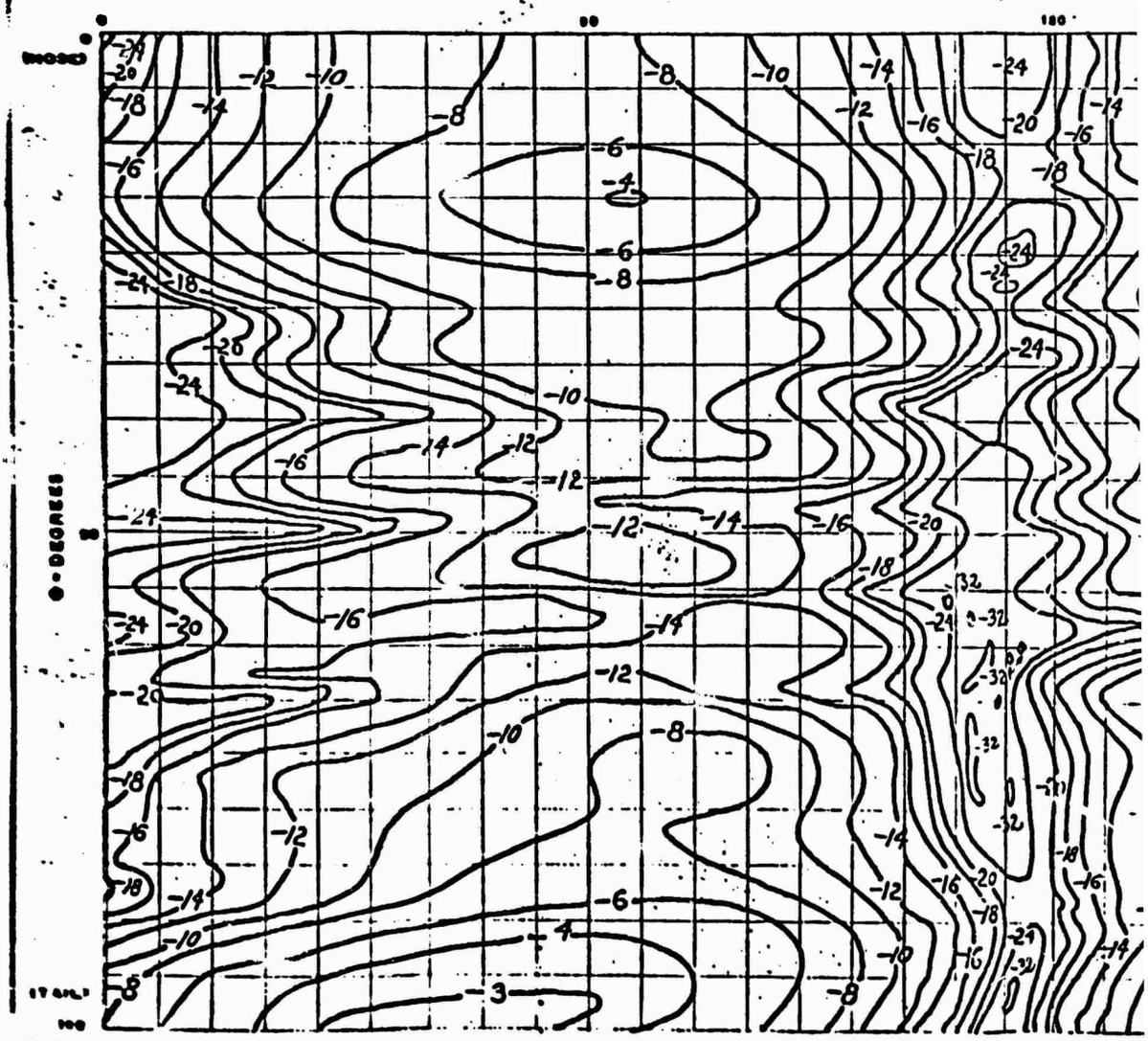
ANTENNA PATTERN

Nose Stub, Configuration XII — Spacecraft Only

5. PROGRAM TITLE	6. PROGRAM REQUIREMENT CODE	7. SYSTEM CODE
Gemini B		

10. TEST CODE	11. PRO PAGE NO.	12. INSTRUMENTATION SYSTEM Comm. (Recc

13. ANTENNA PATTERN PLOT



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MAC 5180 (REV 13 AUG 68)

	3. SECURITY CLASSIFICATION	2. PAGE 26
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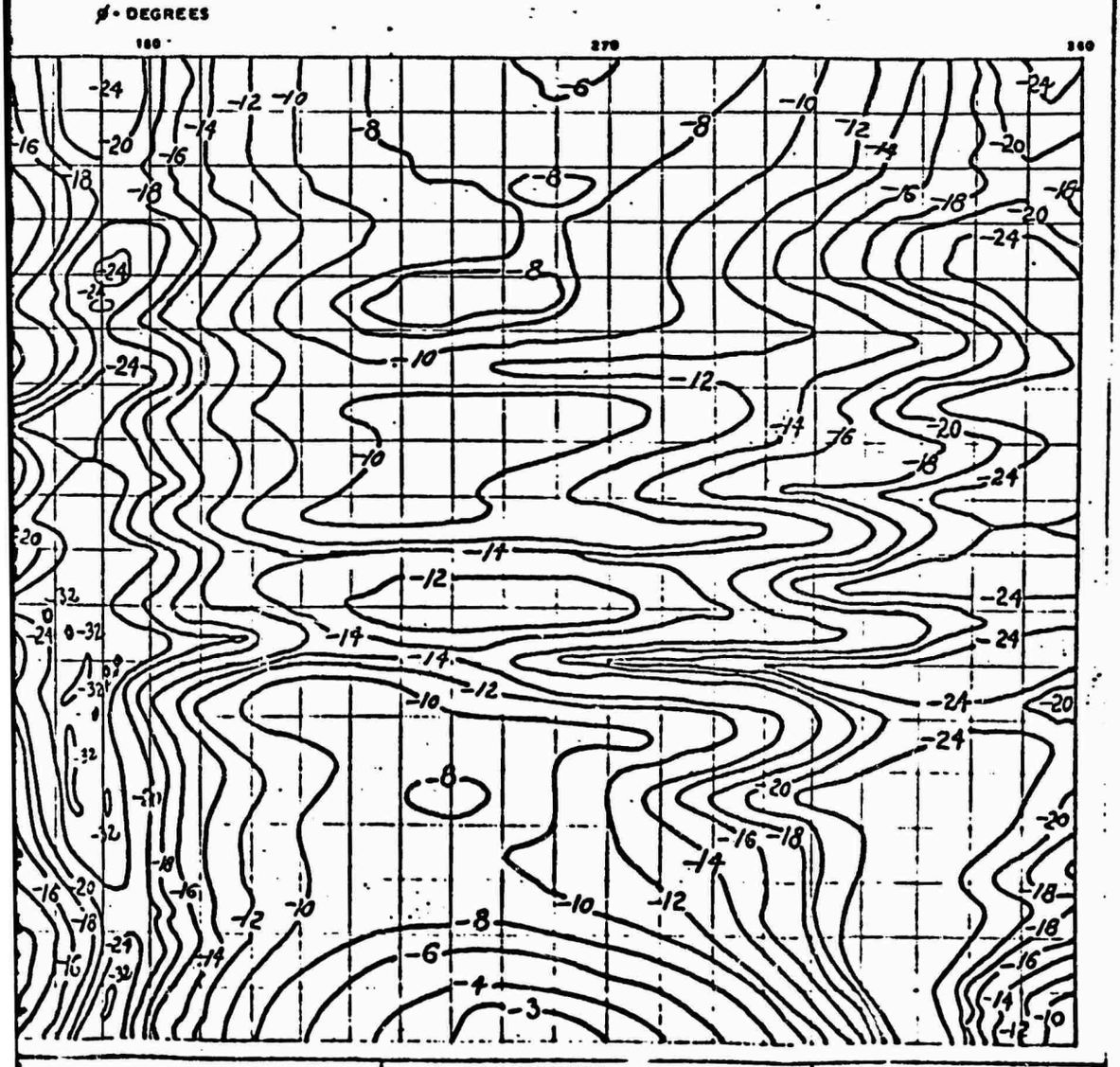
CODE 7. SYSTEM CODE	8. CONTRACTOR/CONTRACT NUMBER	4. REPLACES PAGE(S)
		DATED
STEM Comm. (Recovery Beacon)		14. - 18. (SEE REVERSE SIDE OF FORM)



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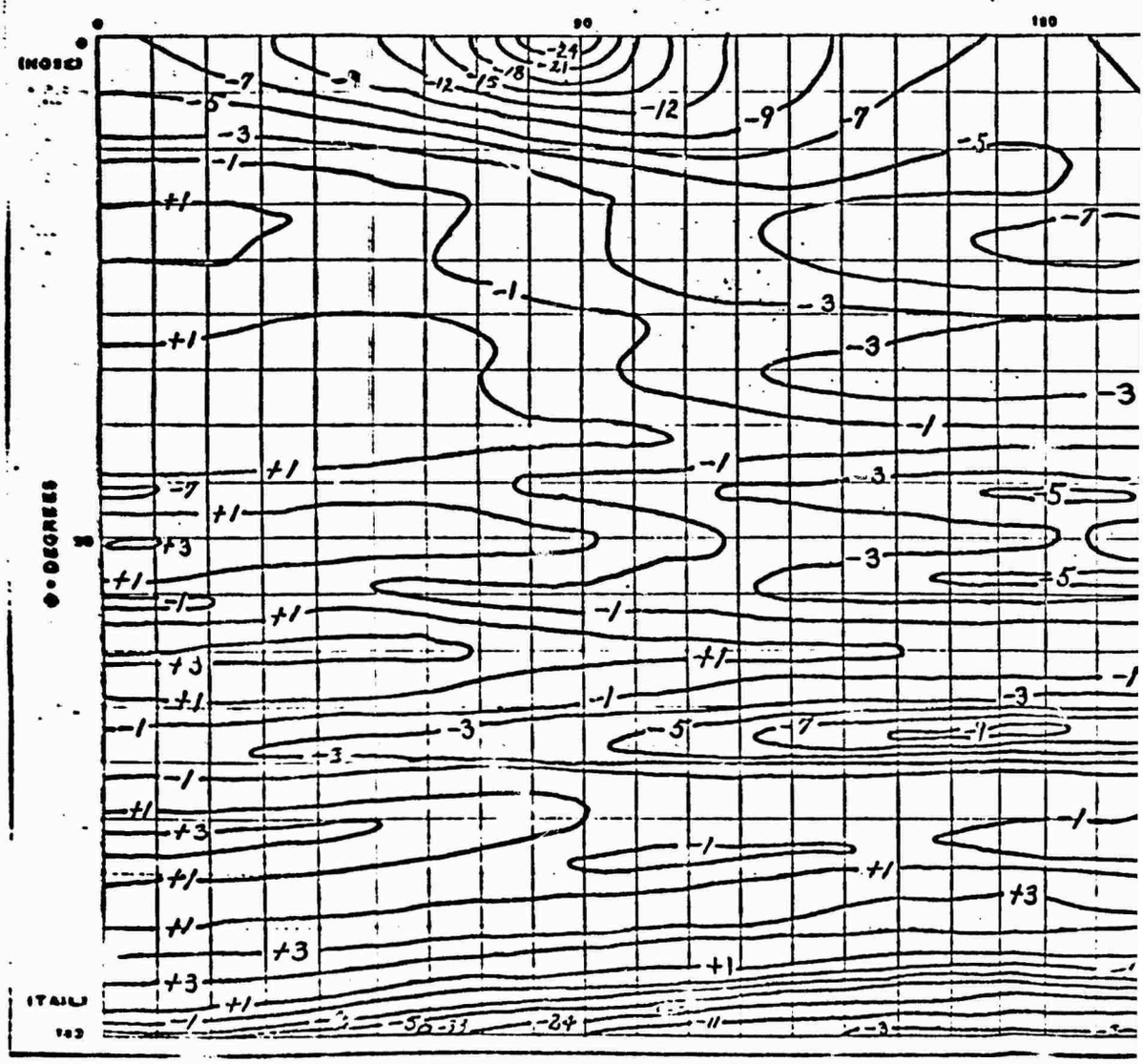
ANTENNA PATTERN

Nose Stub, Configuration XII — Spacecraft Only

5. PROGRAM TITLE	6. PROGRAM REQUIREMENT CODE	7. SYSTEM CODE
Gemini B		

10. TEST CODE	11. PRD PAGE NO.	12. INSTRUMENTATION SYSTEM Comm. Recor

13. ANTENNA PATTERN PLOT



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MAC 3130 (REV 28 AUG 61)

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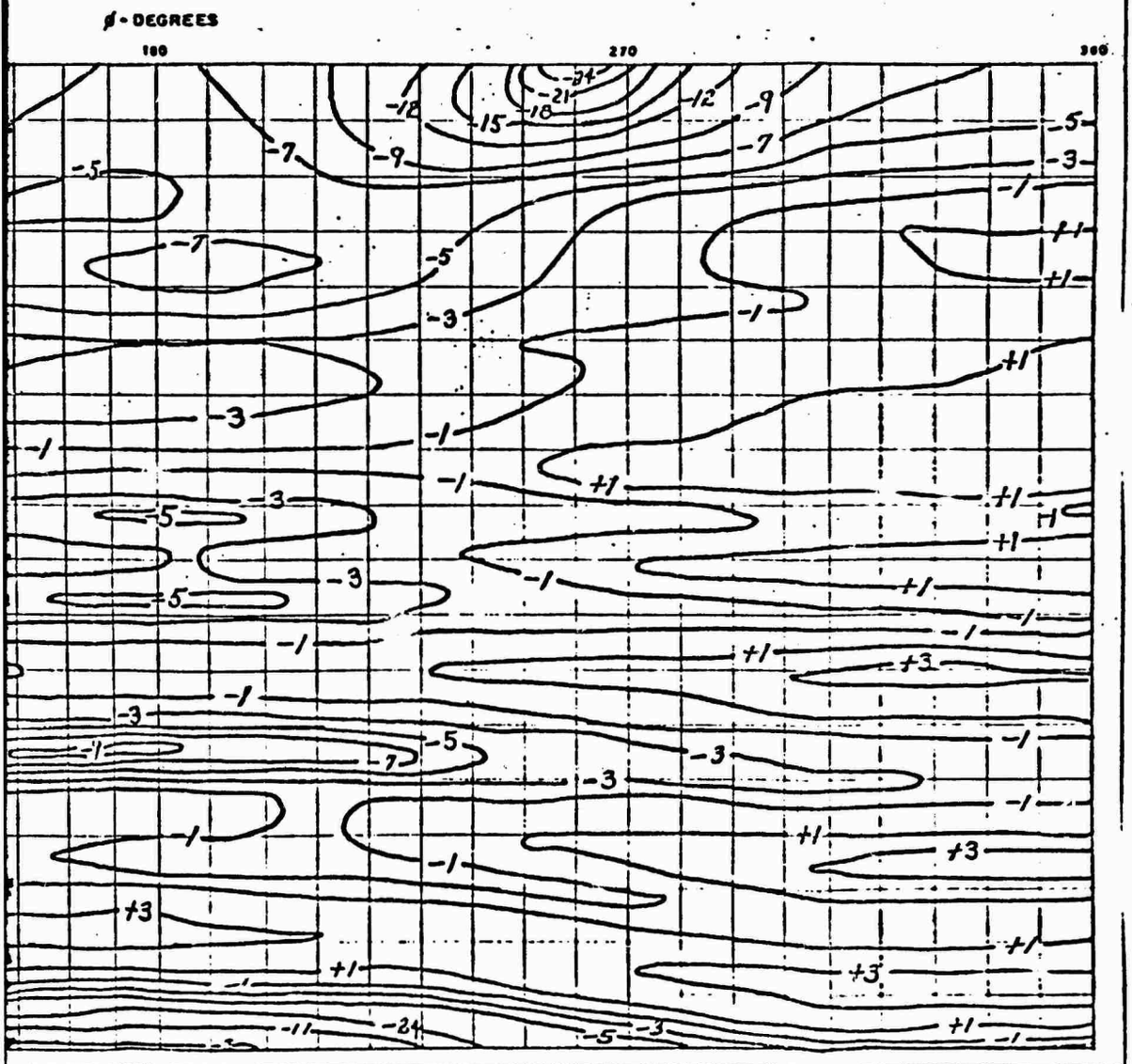
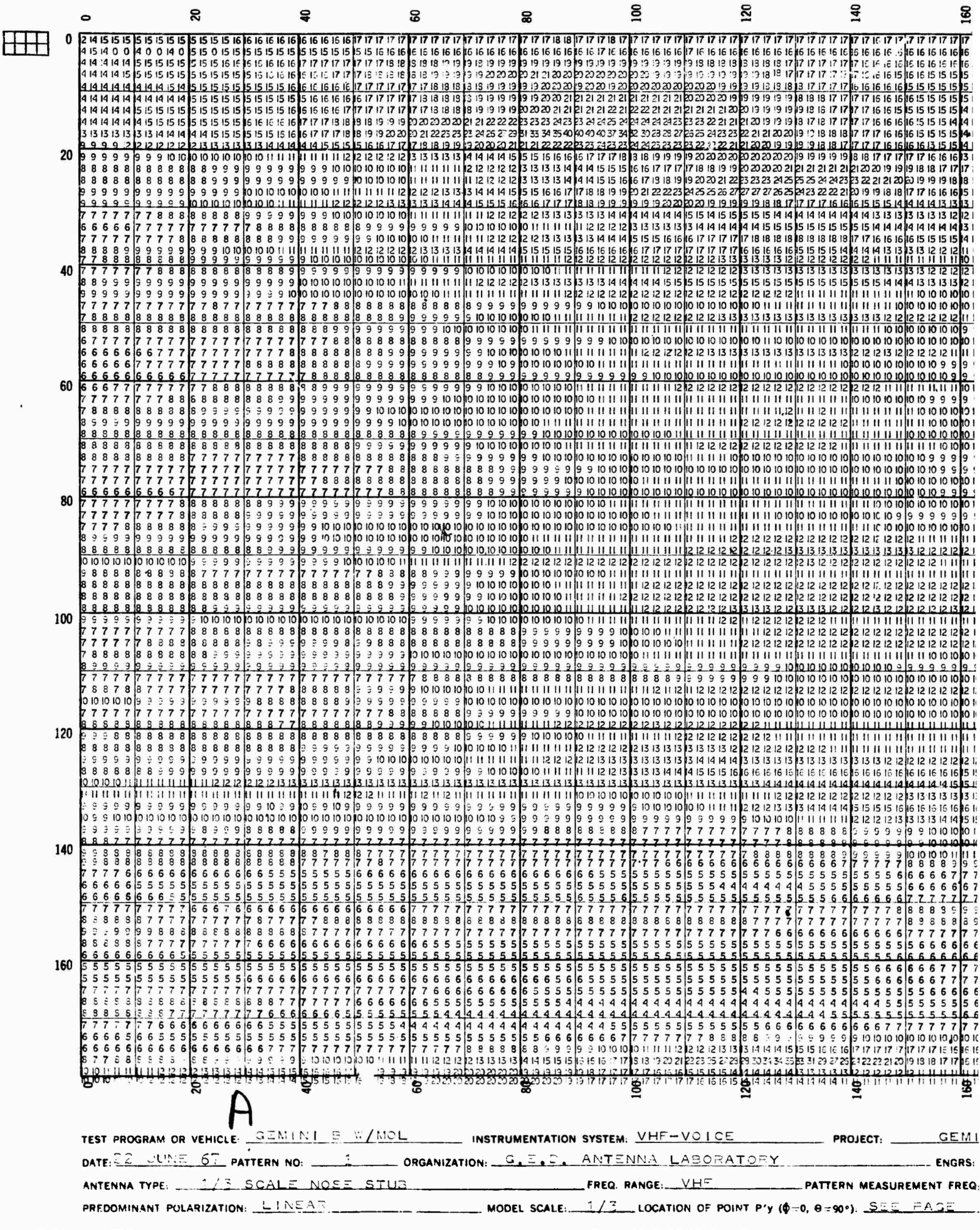
ST. LOUIS, MISSOURI

craft Only	1. SECURITY CLASSIFICATION: U	2. PAGE 27
		3. DATE
		4. REPLACES PAGE(S) DATED
T CODE / 7. SYSTEM CODE	8. CONTRACTOR/CONTRACT NUMBER	
SYSTEM Coma. Recovery Beacon)	14. - 18. (SEE REVERSE SIDE OF FORM)	



1. SECURITY CLASSIFICATION	2. REVISION NO.

B



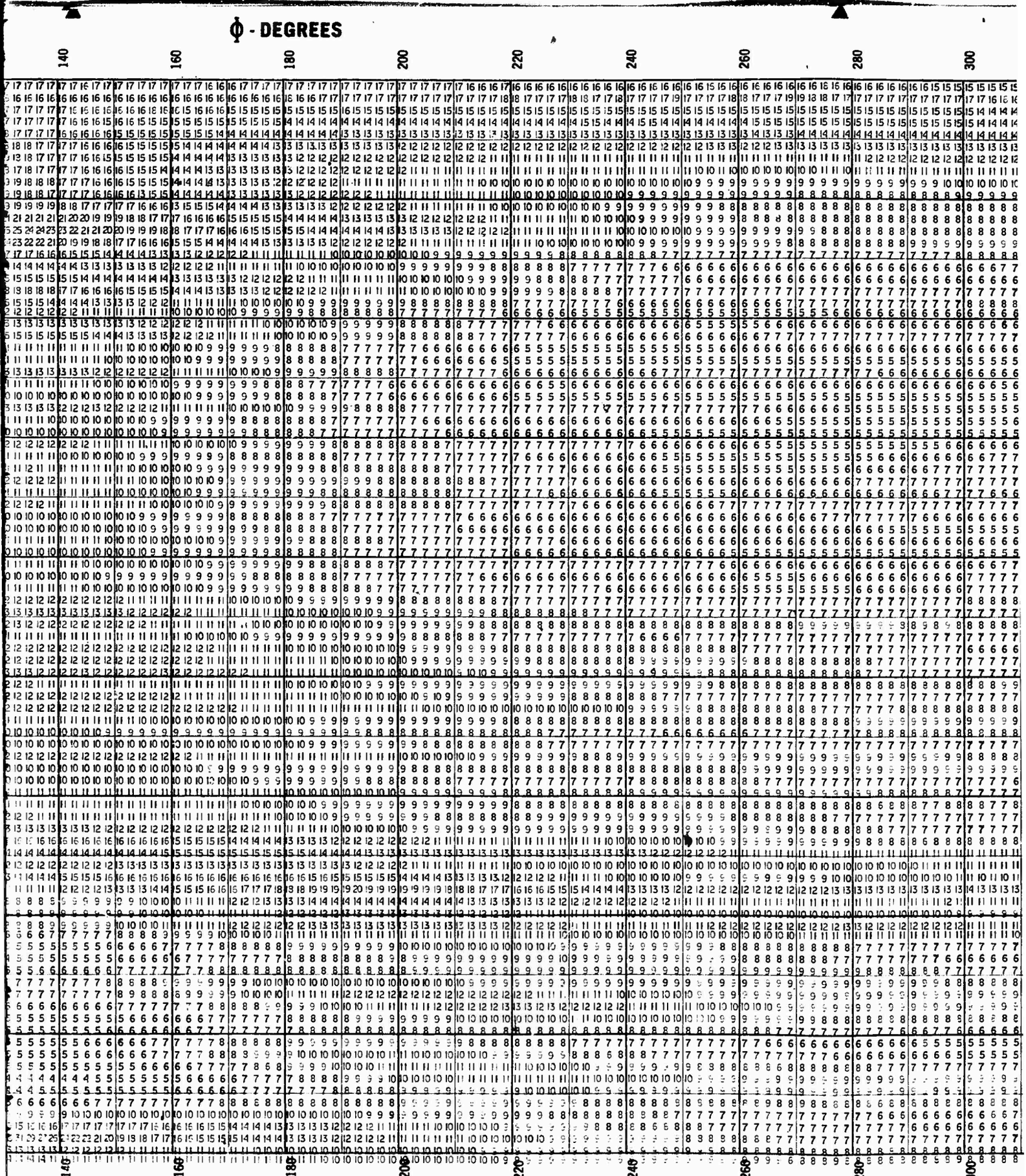
A

TEST PROGRAM OR VEHICLE: GEMINI B W/MOL INSTRUMENTATION SYSTEM: VHF-VOICE PROJECT: GEMI

DATE: 22 JUNE 67 PATTERN NO: 1 ORGANIZATION: G.E.D. ANTENNA LABORATORY ENGRS:

ANTENNA TYPE: 1/3 SCALE NOSE STUB FREQ. RANGE: VHF PATTERN MEASUREMENT FREQ.

PREDOMINANT POLARIZATION: LINEAR MODEL SCALE: 1/3 LOCATION OF POINT P'y (ϕ=0, θ=90°). SEE FACE



PROJECT: GEMINI B

ENGRS: EM CS

PATTERN MEASUREMENT FREQ: 820.4 MHZ

0, Θ=90°). SEE PAGE

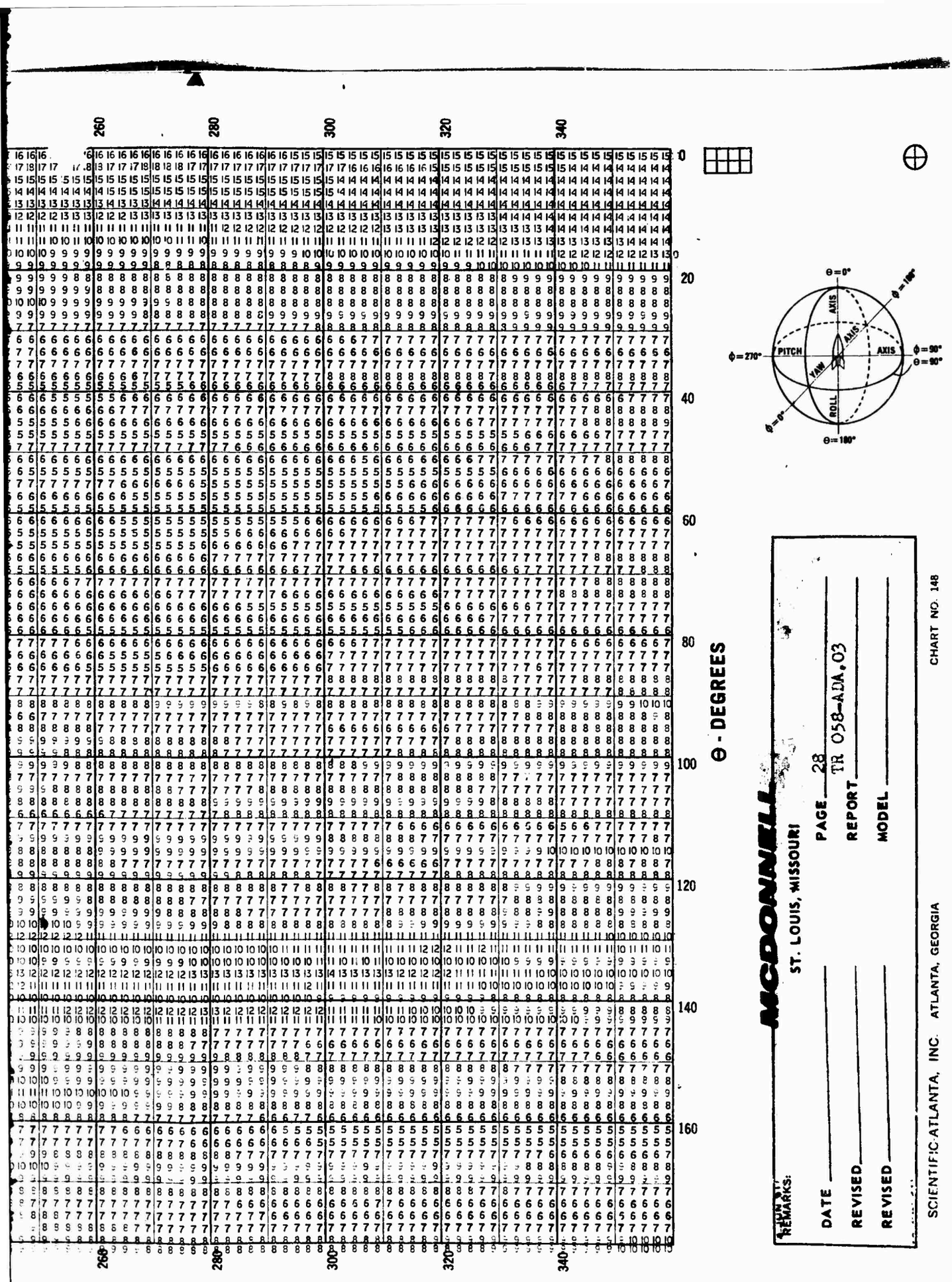
B

GAIN PLOT: ☒ POLARIZATION COMPONENT RECORDED: LINEAR ☐ E_Φ, ☐ E_Θ; CIRCULAR ☐ RH, ☒ LH

GAINS ARE IN DECIBELS BELOW A REFERENCE LEVEL OF +☐ −☐ 7.6 DB RELATIVE TO AN ISOTROPIC ANT

PHASE-ANGLE PLOT: ☐ PHASE ANGLE RECORDED: ☐δ, ☐δ'

PHASE ANGLES ARE RECORDED VALUES IN DEGREES MULTIPLIED BY 10.



MCDONNELL
ST. LOUIS, MISSOURI

PAGE 28
REPORT TR 058-ADA-03
MODEL

DATE
REVISED
REVISED

REMARKS:

CHART NO. 148

SCIENTIFIC-ATLANTA, INC. ATLANTA, GEORGIA

CORDED: LINEAR ☐ E_ϕ, ☐ E_θ; CIRCULAR ☐ RH, ☒ LH

LEVEL OF +☐ -☐ 7.8 DB RELATIVE TO AN ISOTROPIC ANTENNA

DED: ☐δ, ☐δ'

REES MULTIPLIED BY 10.

CONFIGURATION I

W/O NOSE FAIRING

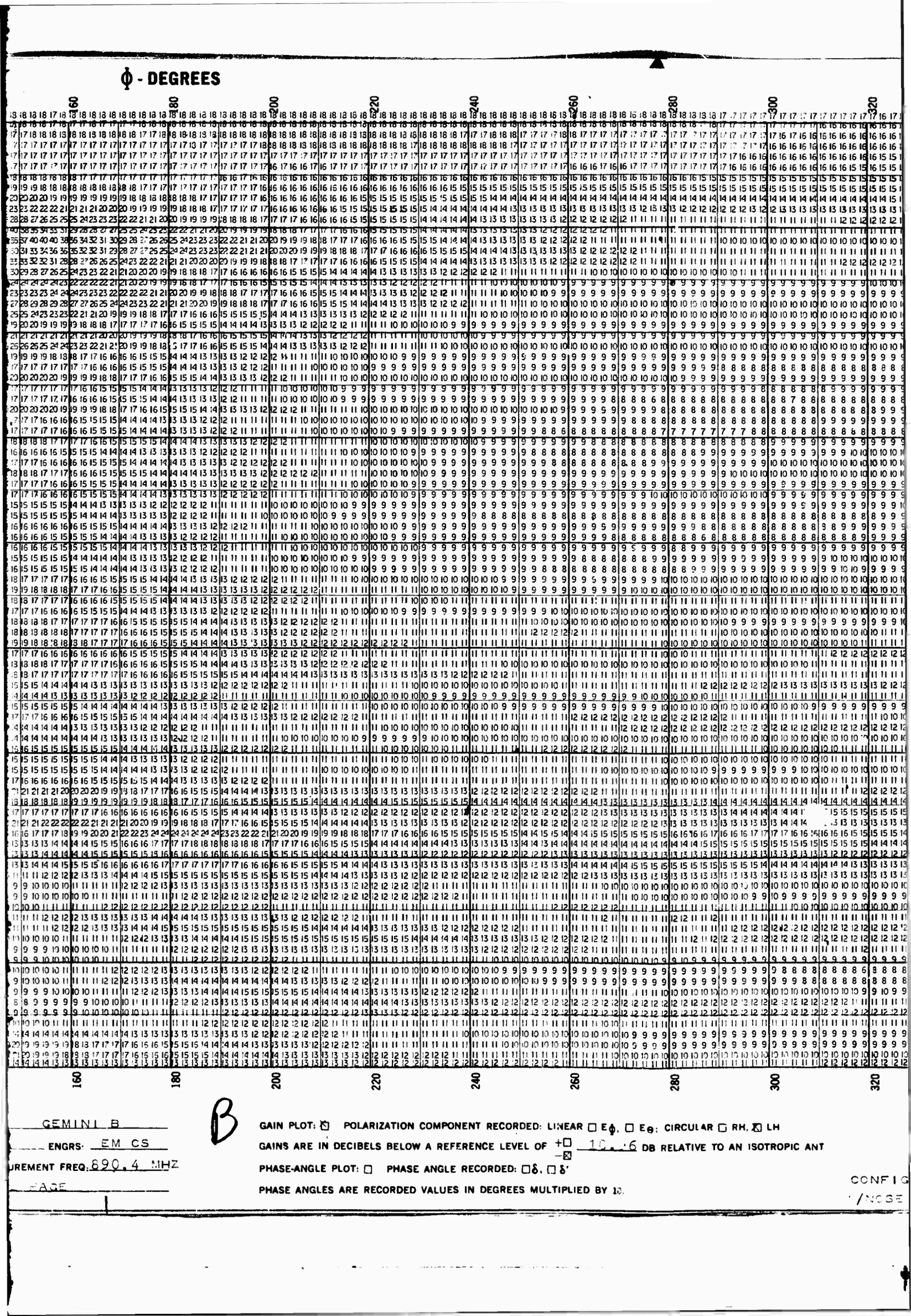
C

TEST PROGRAM OR VEHICLE: GEMINI B W/MOL INSTRUMENTATION SYSTEM: VHF-VOICE PROJECT: GEMINI

DATE: 6 JUNE 1967 PATTERN NO: 2 ORGANIZATION: G. E. D. ANTENNA LABORATORY ENGRS:

ANTENNA TYPE: 1/3 SCALE NOSE STUB FREQ. RANGE: VHF PATTERN MEASUREMENT FREQ: 8

PREDOMINANT POLARIZATION: LINEAR MODEL SCALE: 1/3 LOCATION OF POINT P'y (ϕ=0, θ=90°): SEE PAGE



GEMINI B

ENGRS: EM CS

UREMENT FREQ: 890.4 MHZ

PASE

B

GAIN PLOT: ☒ POLARIZATION COMPONENT RECORDED: LINEAR ☐ E_ϕ, ☐ E_θ; CIRCULAR ☐ RH, ☒ LH

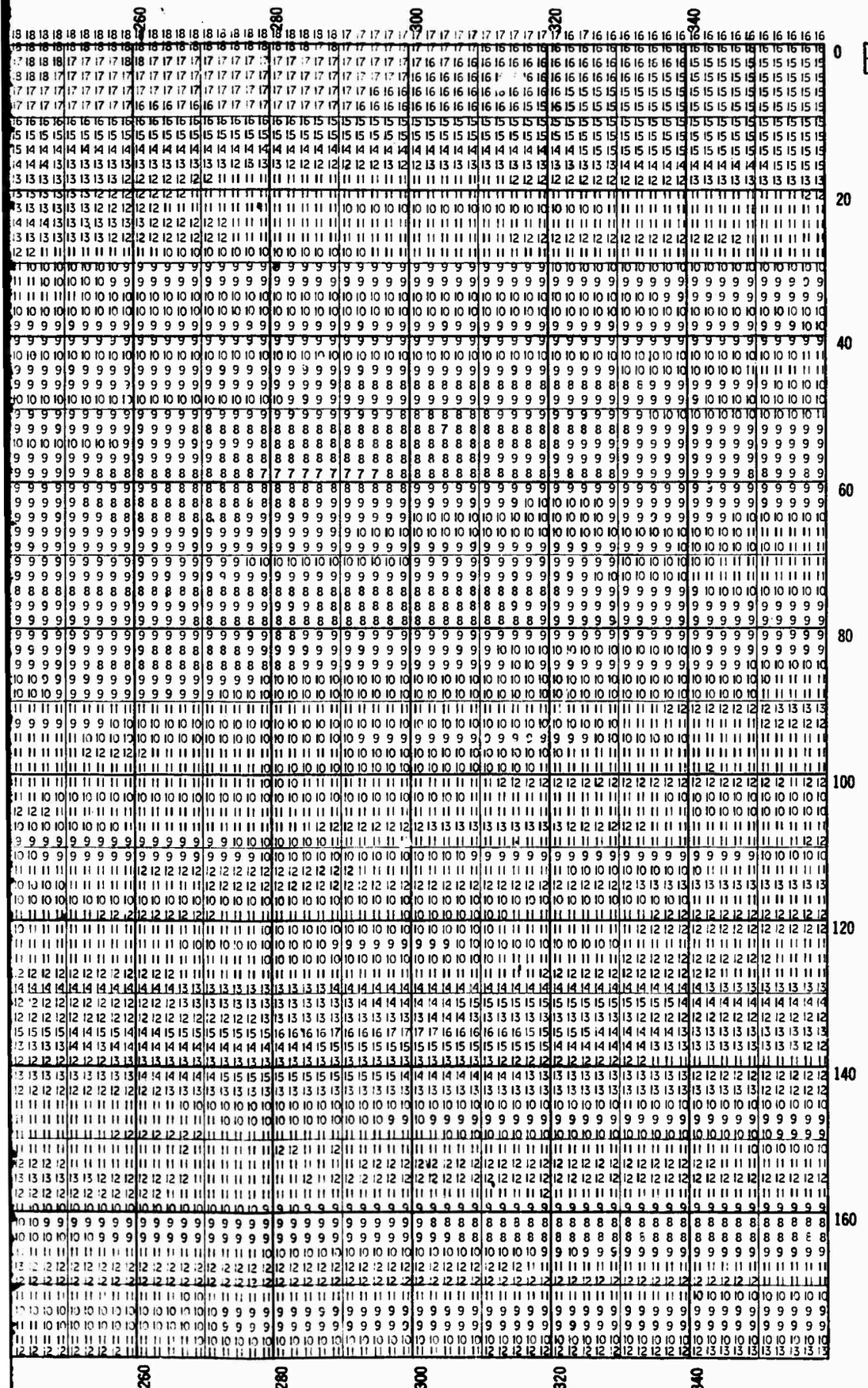
GAINS ARE IN DECIBELS BELOW A REFERENCE LEVEL OF +☐ −☒ 10.6 DB RELATIVE TO AN ISOTROPIC ANT

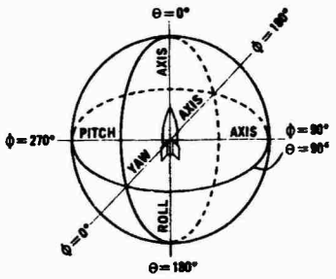
PHASE-ANGLE PLOT: ☐ PHASE ANGLE RECORDED: ☐δ, ☐δ'

PHASE ANGLES ARE RECORDED VALUES IN DEGREES MULTIPLIED BY 10.

CONFIG

/NOSE





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PAGE 29

REPORT TR 058-ADA-03

MODEL

REMARKS:

DATE

REVISED

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SCIENTIFIC-ATLANTA, INC. ATLANTA, GEORGIA

CHART NO. 148

RECORDED: LINEAR ☐ E_ϕ, ☐ E_θ; CIRCULAR ☐ RH, ☒ LH

CE LEVEL OF +☐ −☒ 10.6 DB RELATIVE TO AN ISOTROPIC ANT

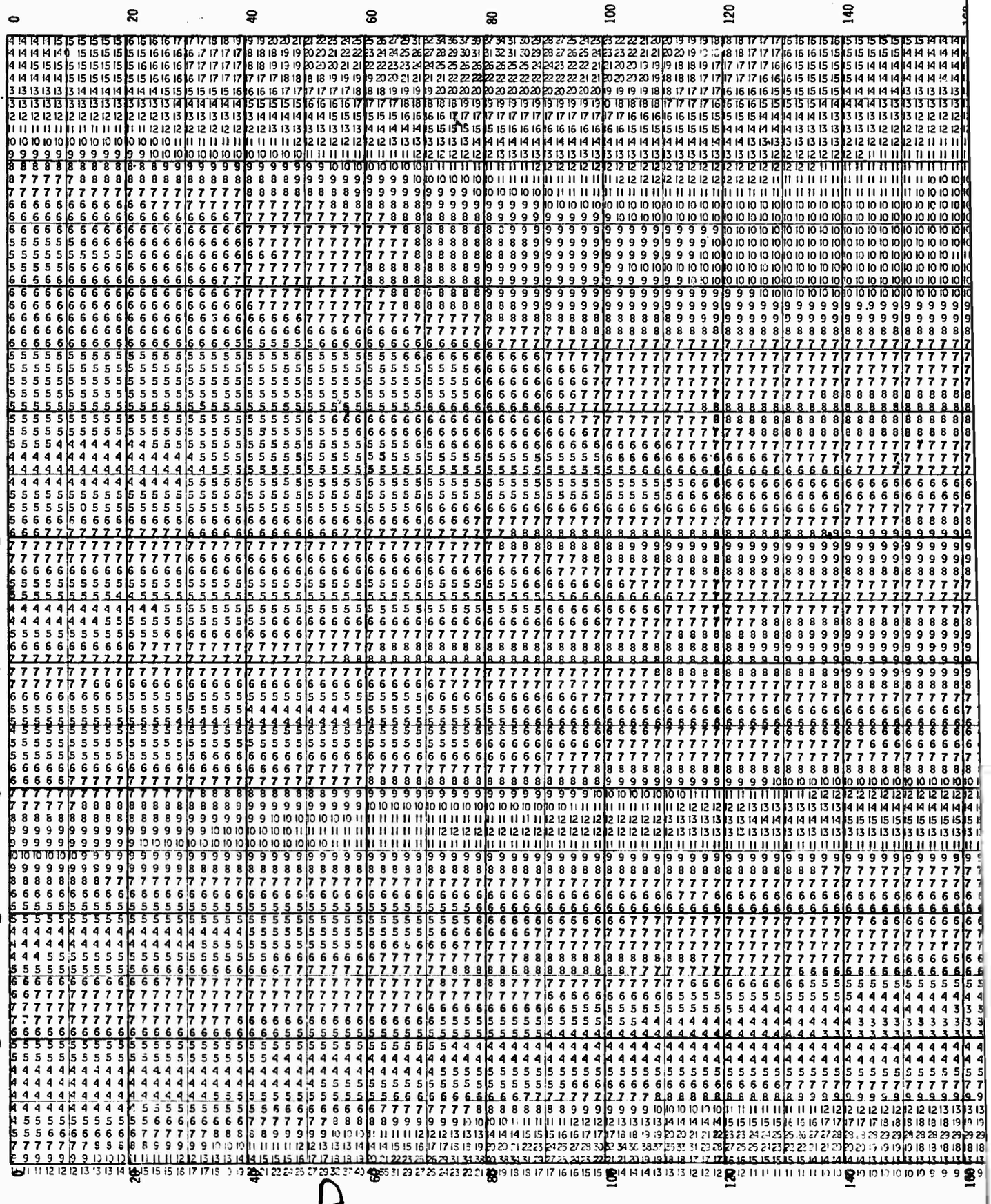
ORDED: ☐ δ, ☐ δ'

DEGREES MULTIPLIED BY 10.

CONFIGURATION II

W/NOSE FAIRING

C



TEST PROGRAM OR VEHICLE: GEMINI B INSTRUMENTATION SYSTEM: RECOVERY BEACON PROJECT: GEMIN

DATE: 15 JUNE 1966 PATTERN NO: 7 ORGANIZATION: G.E.C.D. M.T.M.A. LABORATORY ENGRS:

ANTENNA TYPE: 1/3 SCALE NOSE STUB FREQ RANGE: VHF PATTERN MEASUREMENT FREQ:

PREDOMINANT POLARIZATION: LINEAR E-θ MODEL SCALE: 1/3 LOCATION OF POINT P'y (Φ=0, Θ=90°): CG - AFT

OBJECT: GEMINI B

ENGRS: EM CS

MEASUREMENT FREQ: 723.0 MHz

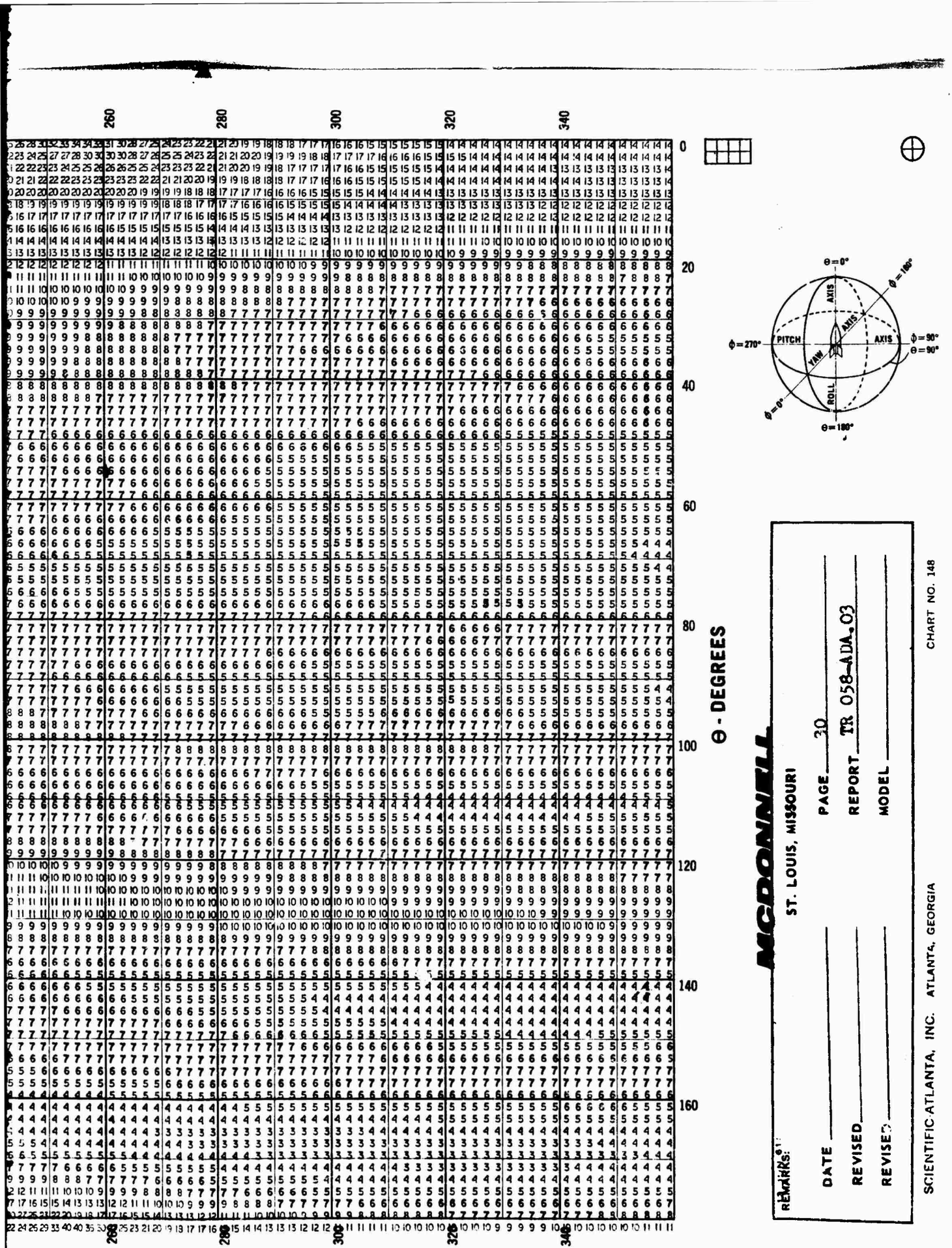
B

GAIN PLOT: ☒ POLARIZATION COMPONENT RECORDED: LINEAR ☐ E_ϕ, ☒ E_θ; CIRCULAR ☐ RH, ☐ LH

GAINS ARE IN DECIBELS BELOW A REFERENCE LEVEL OF $\pm\square$ 6.64 DB RELATIVE TO AN ISOTROPIC ANTENNA

PHASE-ANGLE PLOT: ☐ PHASE ANGLE RECORDED. ☐ δ, ☐ δ'

PHASE ANGLES ARE RECORDED VALUES IN DEGREES MULTIPLIED BY 10.



MCDONNELL

ST. LOUIS, MISSOURI

PAGE 30

REPORT TR 058-ADA-03

MODEL

DATE

REVISED

REVISED

REMARKS:

SCIENTIFIC ATLANTA, INC. ATLANTA, GEORGIA

CHART NO. 148

RECORDED: LINEAR ☐ E_ϕ, ☒ E_θ; CIRCULAR ☐ RH, ☐ LH

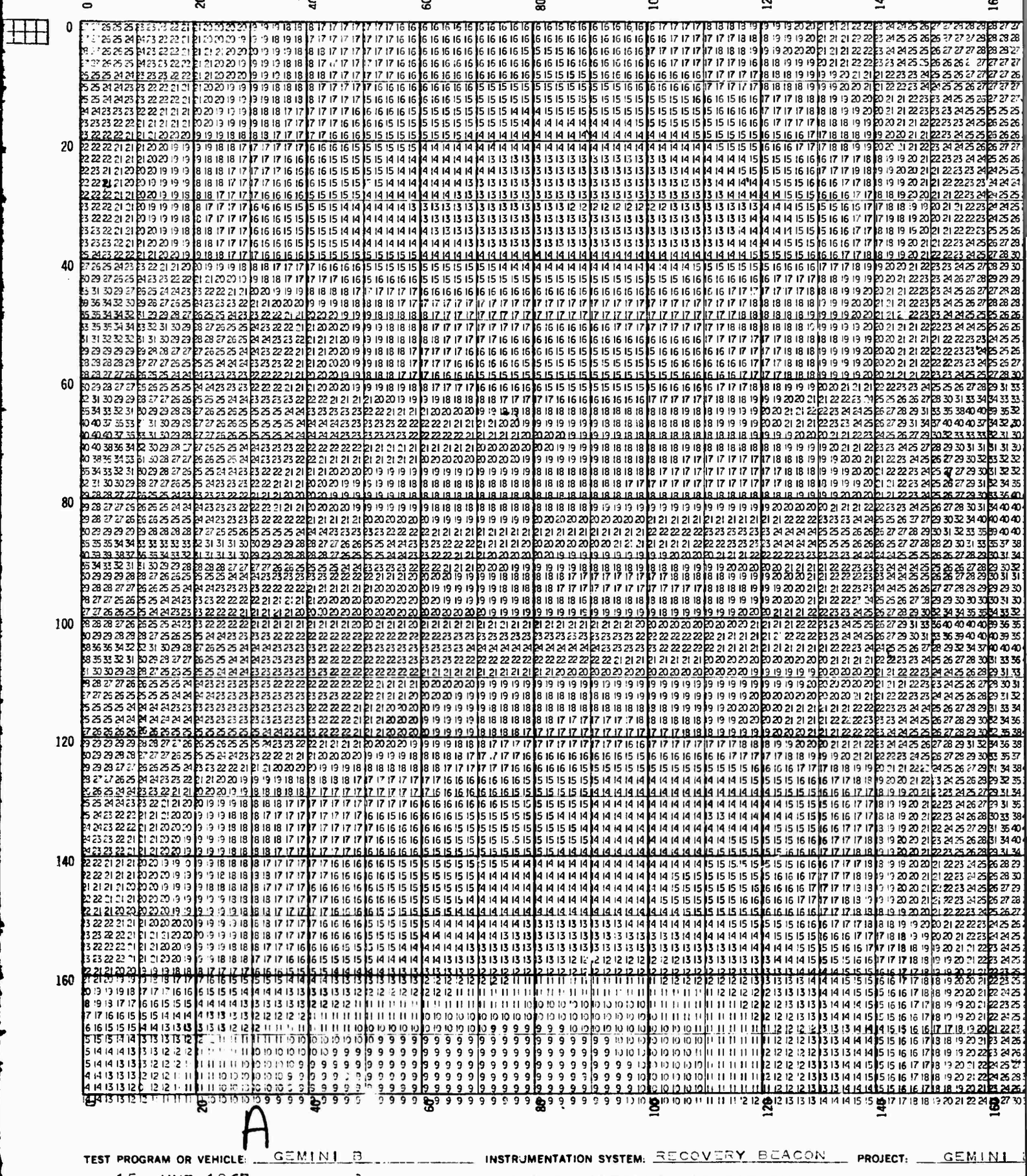
CE LEVEL OF +☐ 6.64 -☐ DB RELATIVE TO AN ISOTROPIC ANTENNA

ORDED: ☐δ, ☐δ'

DEGREES MULTIPLIED BY 10.

CONFIGURATION XI

W/ NOSE FAIRING

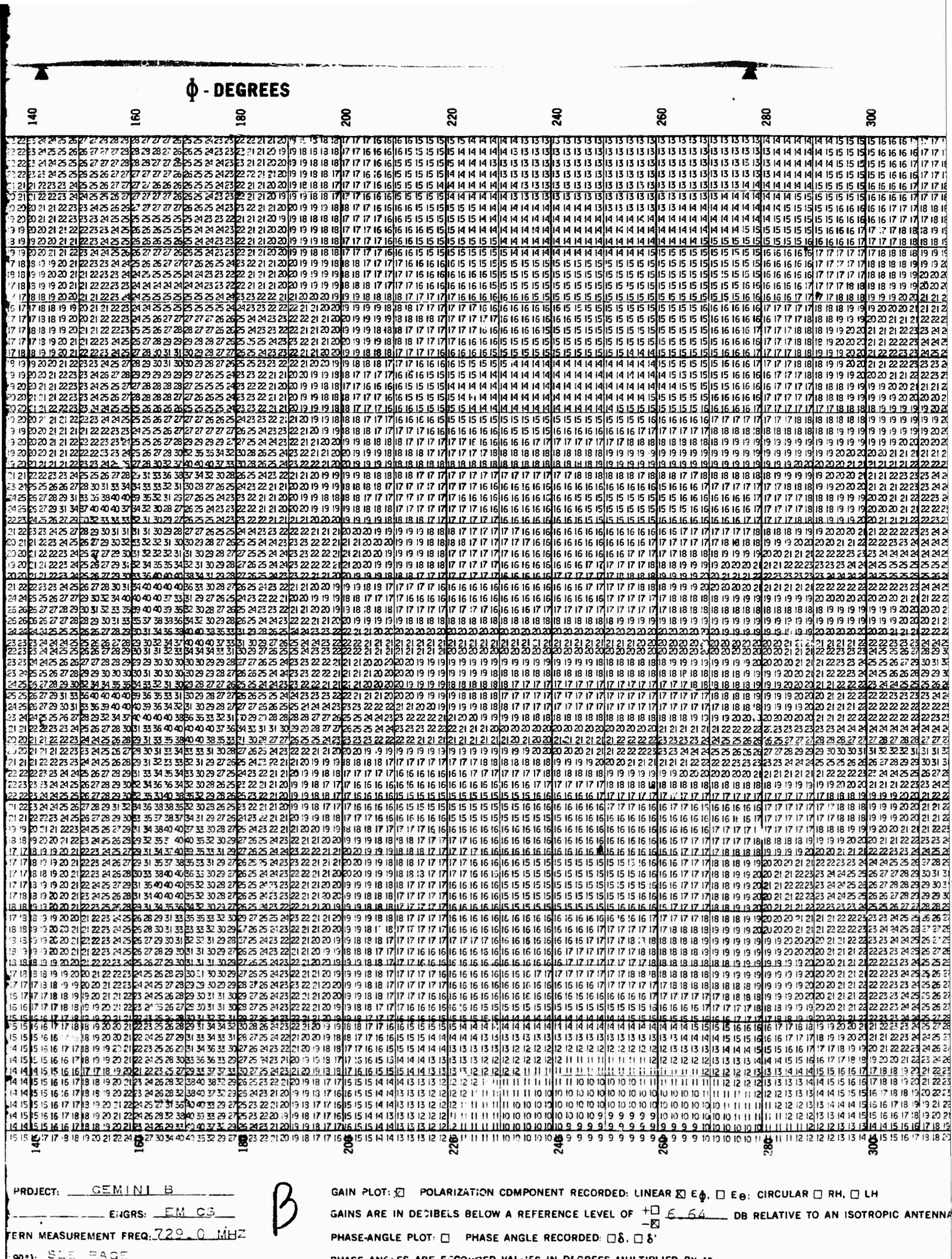


TEST PROGRAM OR VEHICLE: GEMINI B INSTRUMENTATION SYSTEM: RECOVERY BEACON PROJECT: GEMINI

DATE: 15 JUNE 1967 PATTERN NO: 5 ORGANIZATION: G. E. D. ANTENNA LABORATORY ENGRS:

ANTENNA TYPE: 1/3 SCALE NOSE STUB FREQ. RANGE: VHF PATTERN MEASUREMENT FREQ: 7

PREDOMINANT POLARIZATION: L NEAR E-PLANE MODEL SCALE: 1/3 LOCATION OF POINT P'y (ϕ=0, θ=90°): SEE PAGE



PRDJECT: GEMINI B

ENGRS: EM CS

TERN MEASUREMENT FREQ: 729.0 MHZ

90°): SEE PAGE

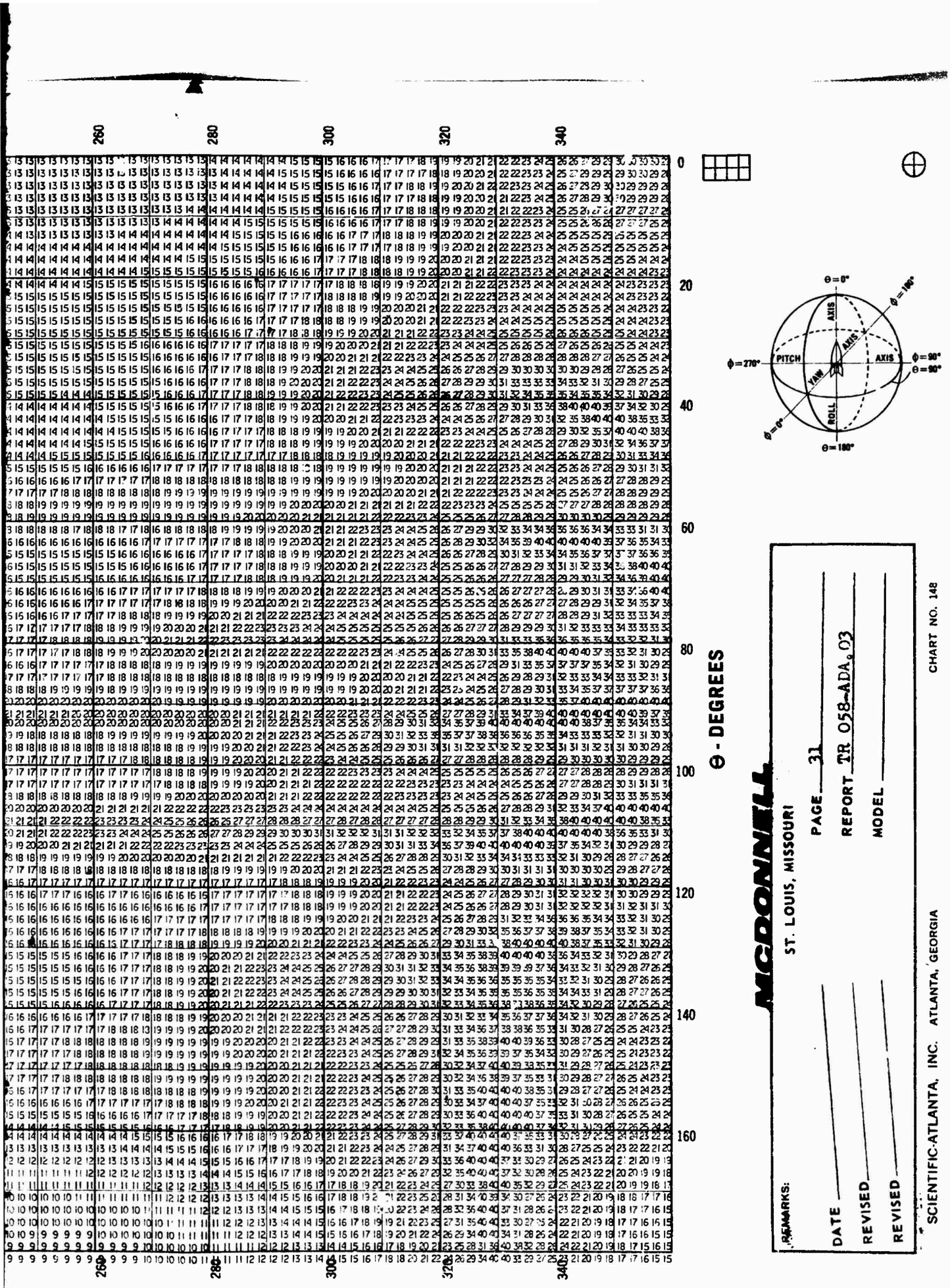
B

GAIN PLOT: ☒ POLARIZATION COMPONENT RECORDED: LINEAR ☒ Eφ, ☐ Eθ; CIRCULAR ☐ RH, ☐ LH

GAINS ARE IN DECIBELS BELOW A REFERENCE LEVEL OF +☐ −☒ 6.64 DB RELATIVE TO AN ISOTROPIC ANTENNA

PHASE-ANGLE PLOT: ☐ PHASE ANGLE RECORDED: ☐δ, ☐δ'

PHASE ANGLES ARE RECORDED VALUES IN DEGREES MULTIPLIED BY 10.



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ST. LOUIS, MISSOURI

PAGE 31

REPORT TR 058-ADA-03

MODEL

REMARKS:

DATE

REVISED

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SCIENTIFIC-ATLANTA, INC. ATLANTA, GEORGIA

CHART NO. 148

RECORDED: LINEAR ☒ E_ϕ, ☐ E_θ; CIRCULAR ☐ RH, ☐ LH

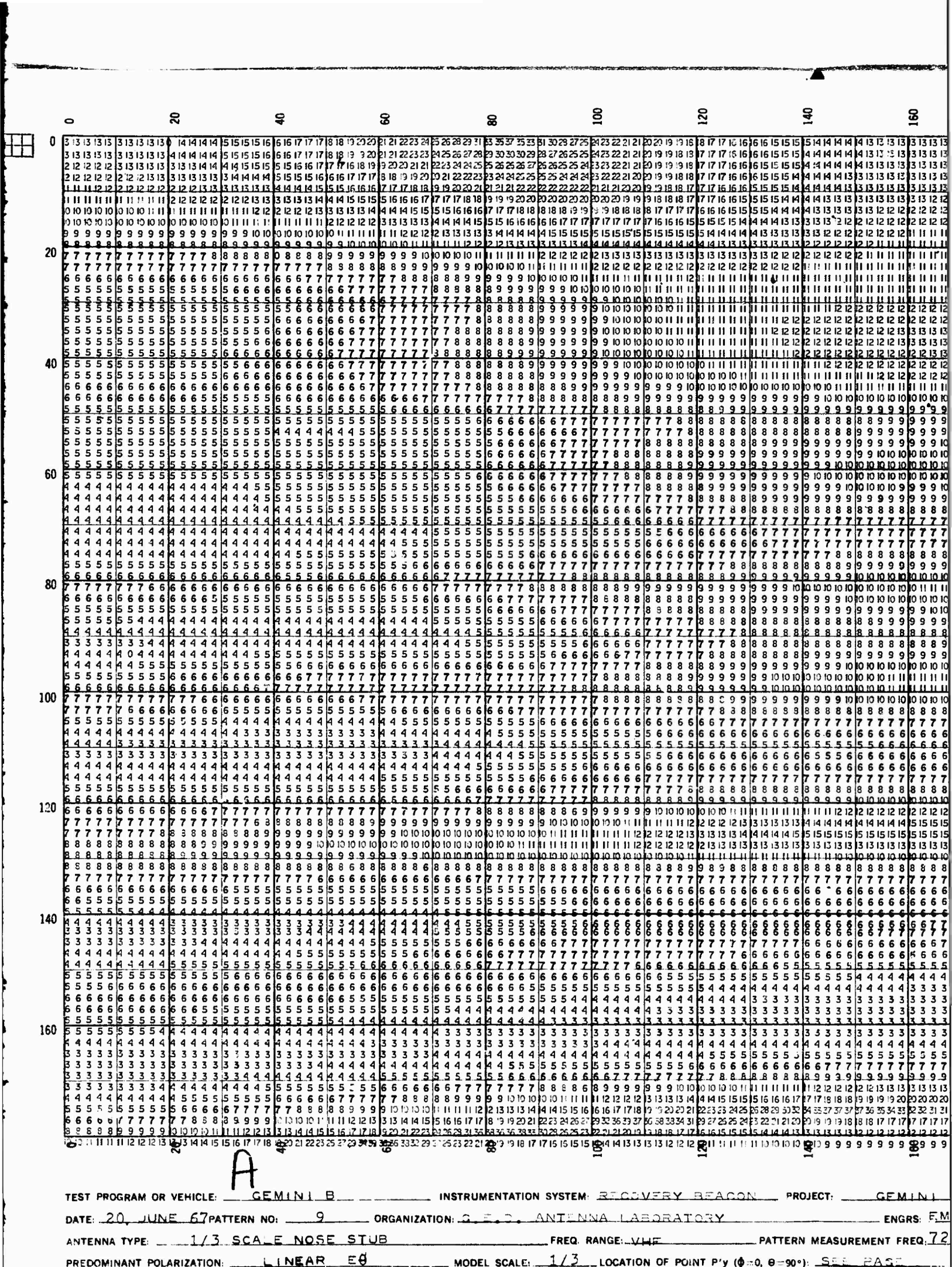
LEVEL OF $\frac{+\square}{-\boxtimes}$ 6.64 DB RELATIVE TO AN ISOTROPIC ANTENNA

ADED: ☐ δ, ☐ δ'

GREES MULTIPLIED BY 10.

CONFIGURATION XI

A/C NOSE FAIRING



TEST PROGRAM OR VEHICLE: GEMINI B INSTRUMENTATION SYSTEM: RECOVERY BEACON PROJECT: GEMINI

DATE: 20, JUNE 67 PATTERN NO: 9 ORGANIZATION: G. E. D. ANTENNA LABORATORY ENGRS: E.M

ANTENNA TYPE: 1/3 SCALE NOSE STUB FREQ. RANGE: VHF PATTERN MEASUREMENT FREQ: 72

PREDOMINANT POLARIZATION: LINEAR Eθ MODEL SCALE: 1/3 LOCATION OF POINT P'y (ϕ=0, θ=90°): SEE PAST

PROJECT: GEMINI B

ENGRS: EM CS

PATTERN MEASUREMENT FREQ: 729.0 MHZ

(Φ 0, Θ=90°): SLF FAST

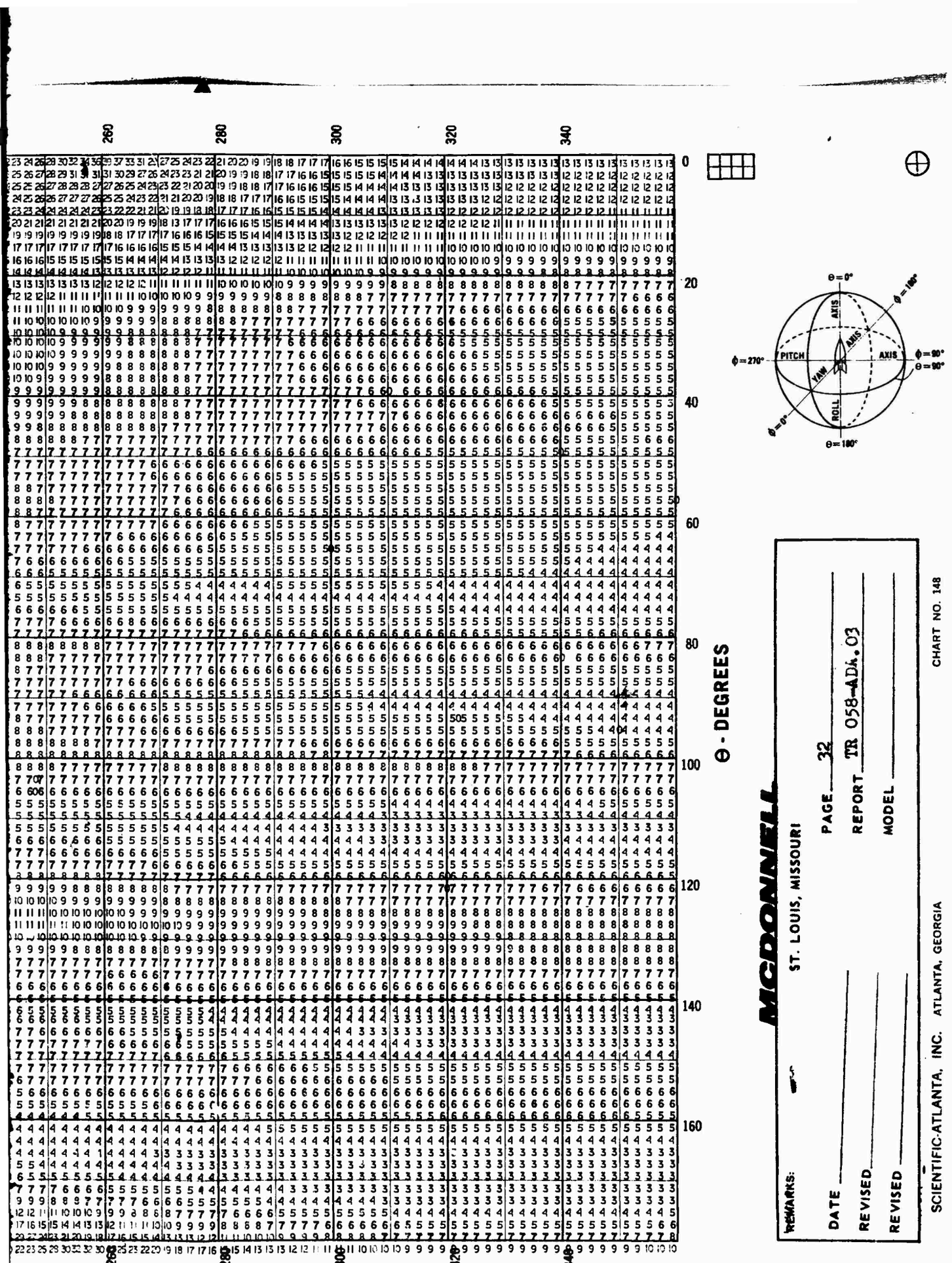
B

GAIN PLOT: ☒ POLARIZATION COMPONENT RECORDED: LINEAR ☐ E_ϕ, ☒ E_θ: CIRCULAR ☐ RH, ☐ LH

GAINS ARE IN DECIBELS BELOW A REFERENCE LEVEL OF +☐ -☐ 6.05 DB RELATIVE TO AN ISOTROPIC

PHASE-ANGLE PLOT: ☐ PHASE ANGLE RECORDED: ☐ δ, ☐ δ'

PHASE ANGLES ARE RECORDED VALUES IN DEGREES MULTIPLIED BY 10.



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ST. LOUIS, MISSOURI

PAGE 32

REPORT TR 058-AD4.03

MODEL

REMARKS:

DATE

REVISED

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CHART NO. 148

SCIENTIFIC-ATLANTA, INC. ATLANTA, GEORGIA

RECORDED: LINEAR ☐ E_ϕ, ☒ E_θ; CIRCULAR ☐ RH, ☐ LH

E LEVEL OF +☐ 6.25 -☐ DB RELATIVE TO AN ISOTROPIC ANTENNA

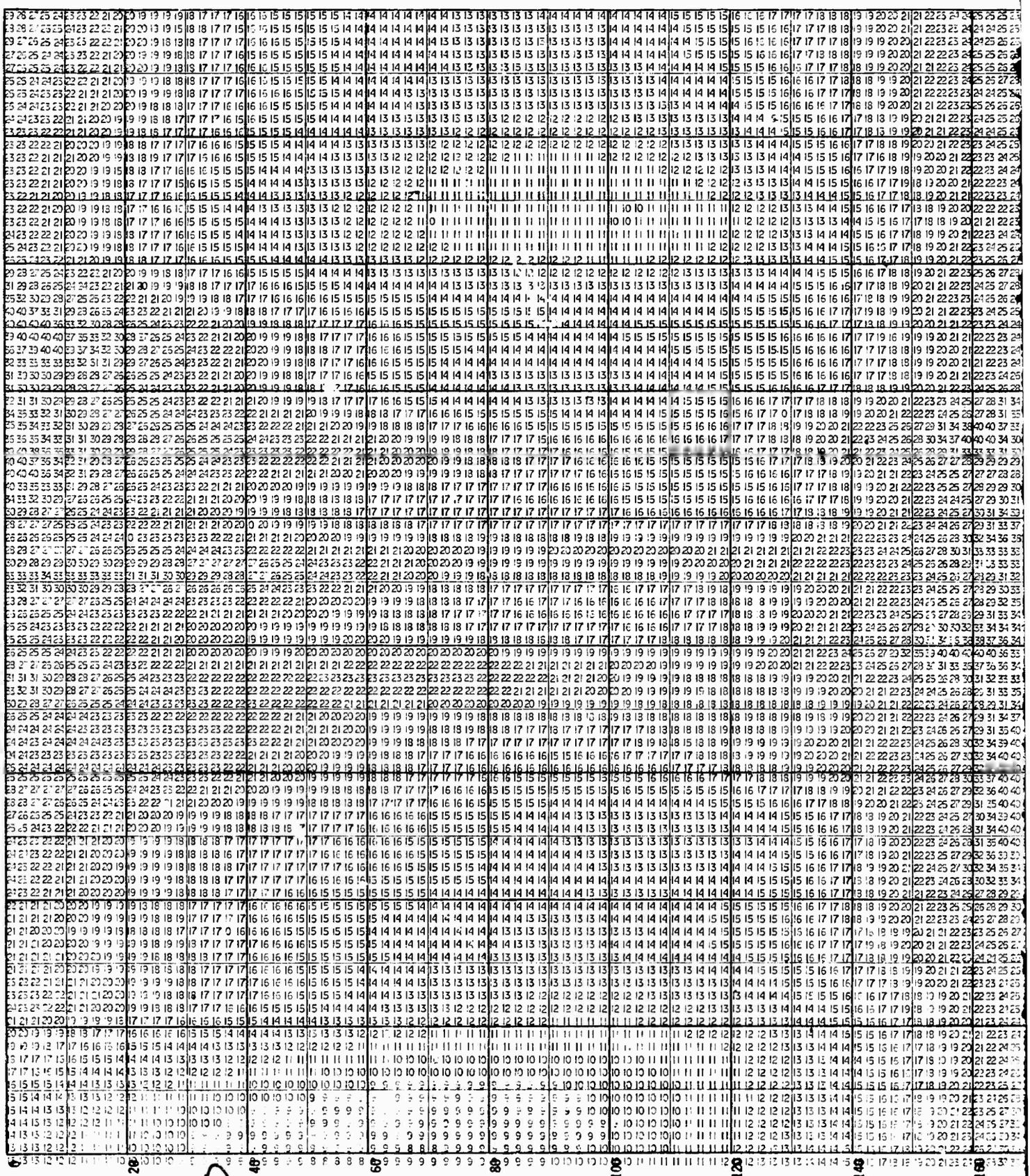
RDED: ☐δ, ☐δ'

EGREES MULTIPLIED BY 10.

CONFIGURATION XII

W/NOSE FAIRING

C



A

TEST PROGRAM OR VEHICLE: GEMINI B INSTRUMENTATION SYSTEM: RECOVERY BEACON PROJECT: GEMINI B

DATE: 22 JUNE 67 PATTERN NO: 10 ORGANIZATION: G.E.C. ANTENNA LABORATORY ENGRS:

ANTENNA TYPE: 1/3 SCALE NOSE STUB FREQ. RANGE: VHF PATTERN MEASUREMENT FREQ: 72

PREDOMINANT POLARIZATION: LINEAR EV MODEL SCALE: 1/3 LOCATION OF POINT P'y (ϕ=0, θ=90°): SEE PAGE

RY BEACON PROJECT: GEMINI 5

NTRY ENGRS: EW CS

PATTERN MEASUREMENT FREQ: 7[illegible] MHz

POINT P'y (φ=0, θ=90°): SEE PAGE

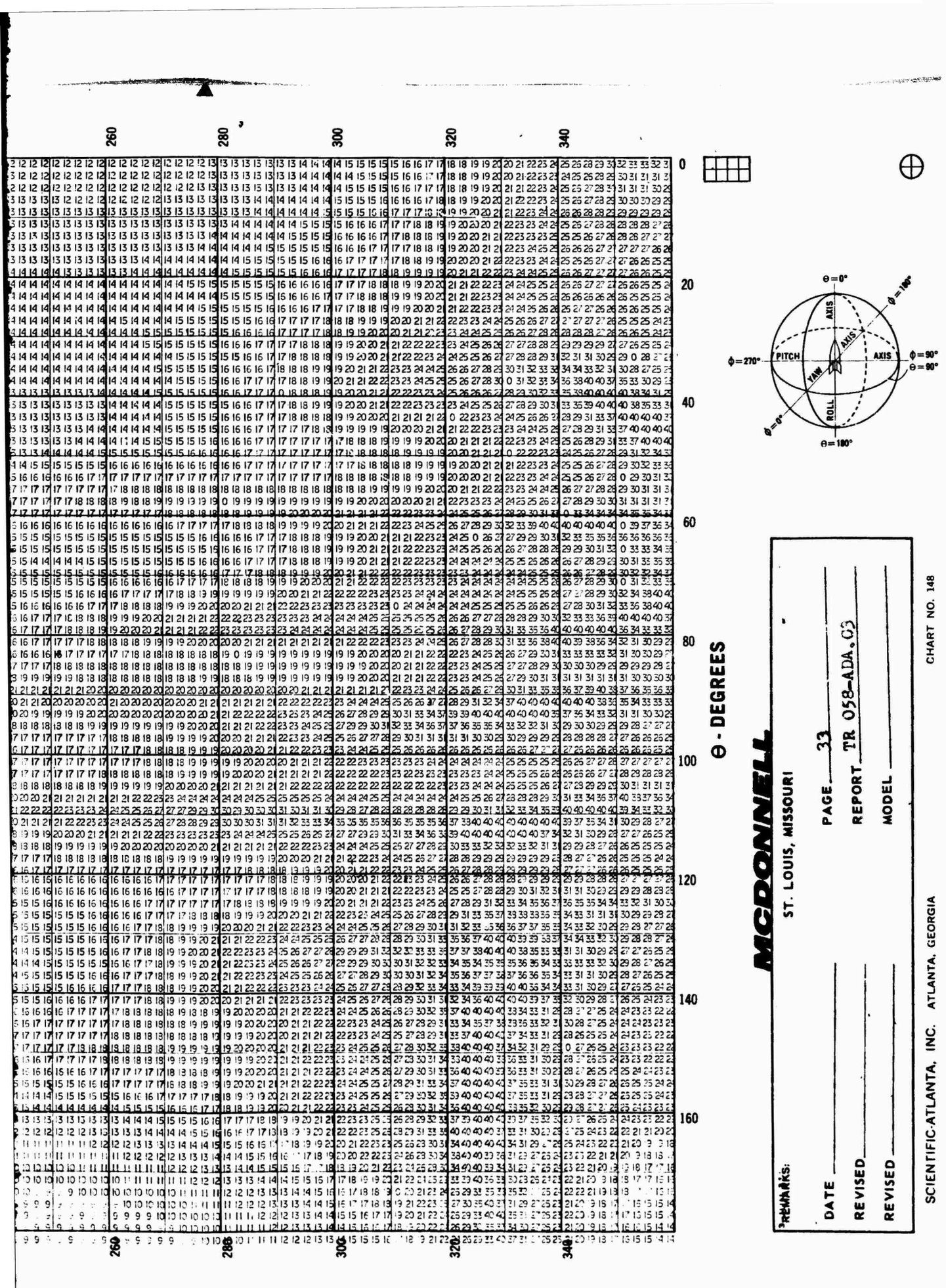
B

GAIN PLOT: ☒ POLARIZATION COMPONENT RECORDED: LINEAR ☒ Eφ, ☐ Eθ; CIRCULAR ☐ RH,

GAINS ARE IN DECIBELS BELOW A REFERENCE LEVEL OF +☐ -☒ 6.05 DB RELATIVE TO AN I

PHASE-ANGLE PLOT: ☐ PHASE ANGLE RECORDED: ☐δ, ☐δ'

PHASE ANGLES ARE RECO[illegible]DED VALUES IN DEGREES MULTIPLIED BY 10.



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PAGE 33

REPORT TR 058-ADA-03

MODEL

REMARKS:

DATE

REVISED

REVISED

CHART NO. 148

SCIENTIFIC-ATLANTA, INC. ATLANTA, GEORGIA

RECORDED: LINEAR ☒ E_ϕ, ☐ E_θ; CIRCULAR ☐ RH, ☐ LH

E LEVEL OF +☐ 6.65 DB RELATIVE TO AN ISOTROPIC ANTENNA

RDED: ☐δ, ☐δ'

EGREES MULTIPLIED BY 10.

CONFIGURATION XII

W/NOSE FAIRING

C

DATE

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REVISED

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PAGE 34

REPORT TR 058-ADA.03

MODEL 195B

ANTENNA: LOG PERIODIC (LOLLY POP)

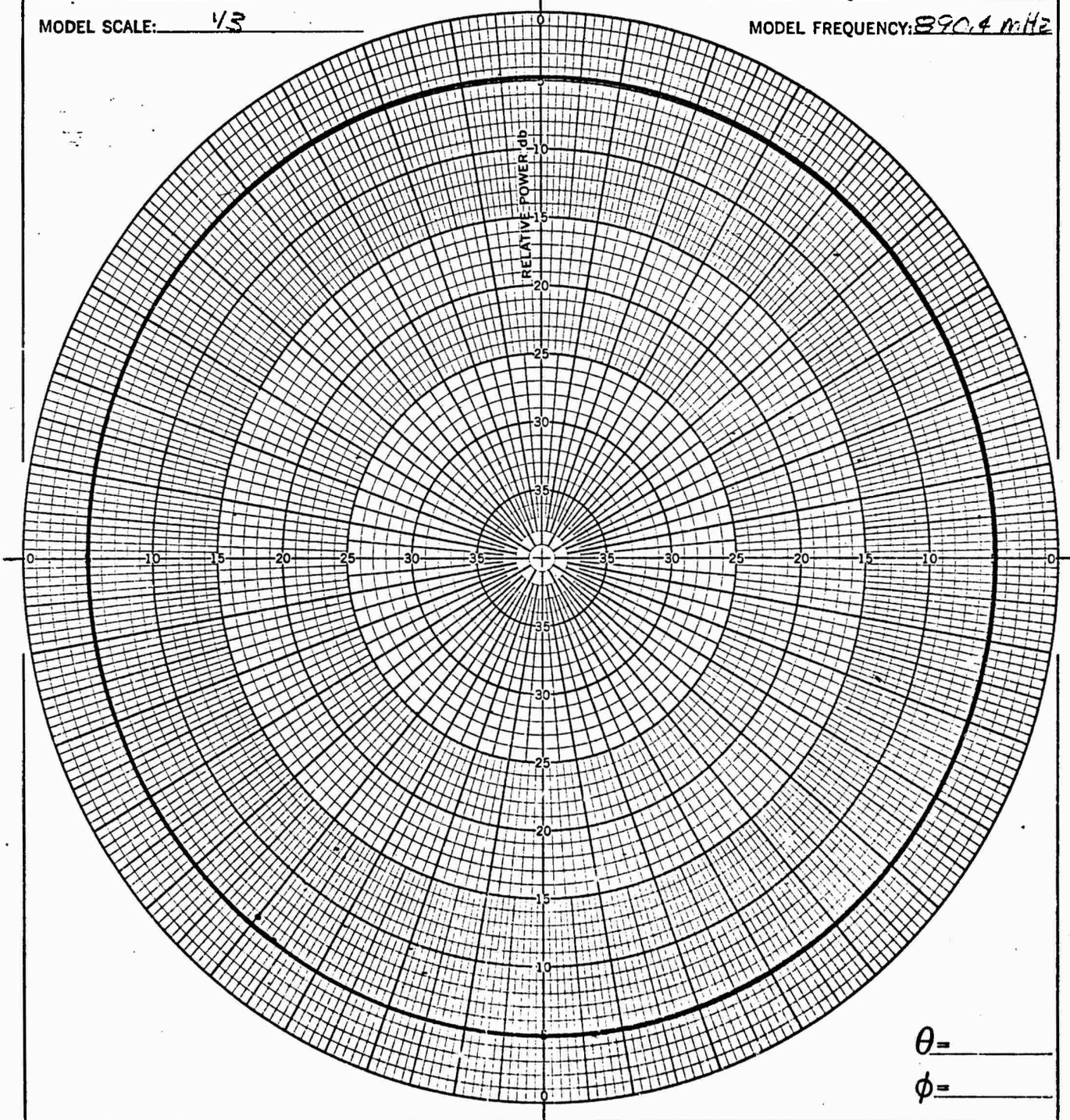
VEHICLE: GEMINI B W/MOL

ANTENNA LOCATION: NOSE

FULL SCALE FREQUENCY: 296.9 mHz

MODEL SCALE: 1/3

MODEL FREQUENCY: 890.4 mHz



CONFIGURATION: I

REMARKS: CIRCULARITY CHECK

INTEGRATOR COUNT:

POLARIZATION: Eϕ ☐ Eθ ☐ OTHER: LHC

PLOTTED IN: RELATIVE POWER db

TRANSMISSION DISTANCE: 500'

OBSERVER: EM & CS DATE: 6/5/67

MAC 231YL (7 MAY 64)

K & E CO.

DATE

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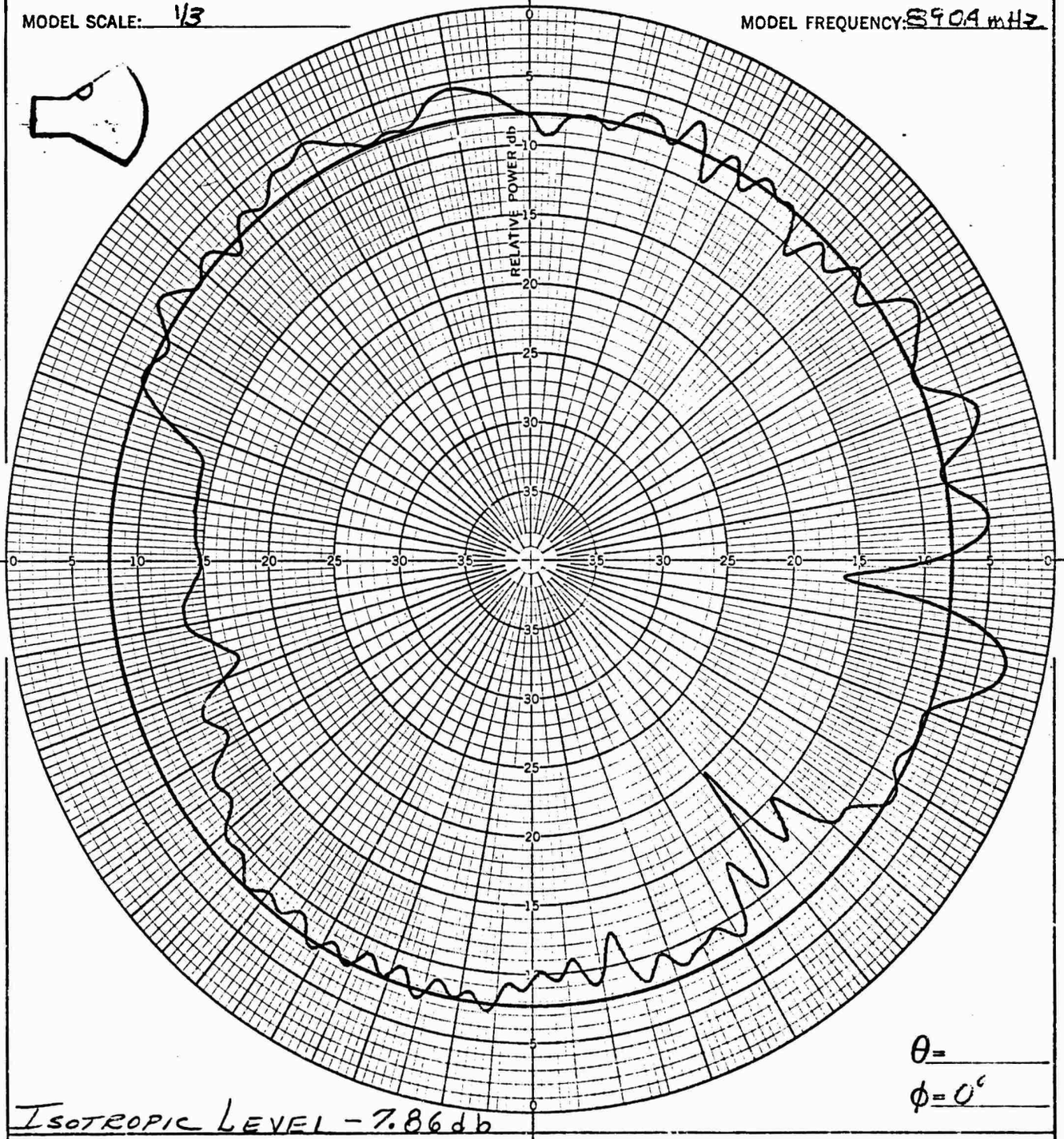
PAGE 35
REPORT TR 058-ADA.03
MODEL 195B

ANTENNA: NOSE STUB
ANTENNA LOCATION: NOSE
MODEL SCALE: 1/3

VEHICLE: GEMINI B W/MOL
FULL SCALE FREQUENCY: 296.8 mHz
MODEL FREQUENCY: 890.4 mHz



ISOTROPIC LEVEL -7.86 db

CONFIGURATION: I
VHF V[illegible] W/[illegible] FAIRING

REMARKS: CALIBRATION -3 db LINE

INTEGRATOR COUNT:
POLARIZATION: Eφ ☐ Eθ ☐ OTHER: LHC
PLOTTED IN: RELATIVE POWER db
TRANSMISSION DISTANCE: 500 ft
OBSERVER: EM & CS DATE: 6-6-67

MAC 231YL (7 MAY 64)

K & E CO.

DATE

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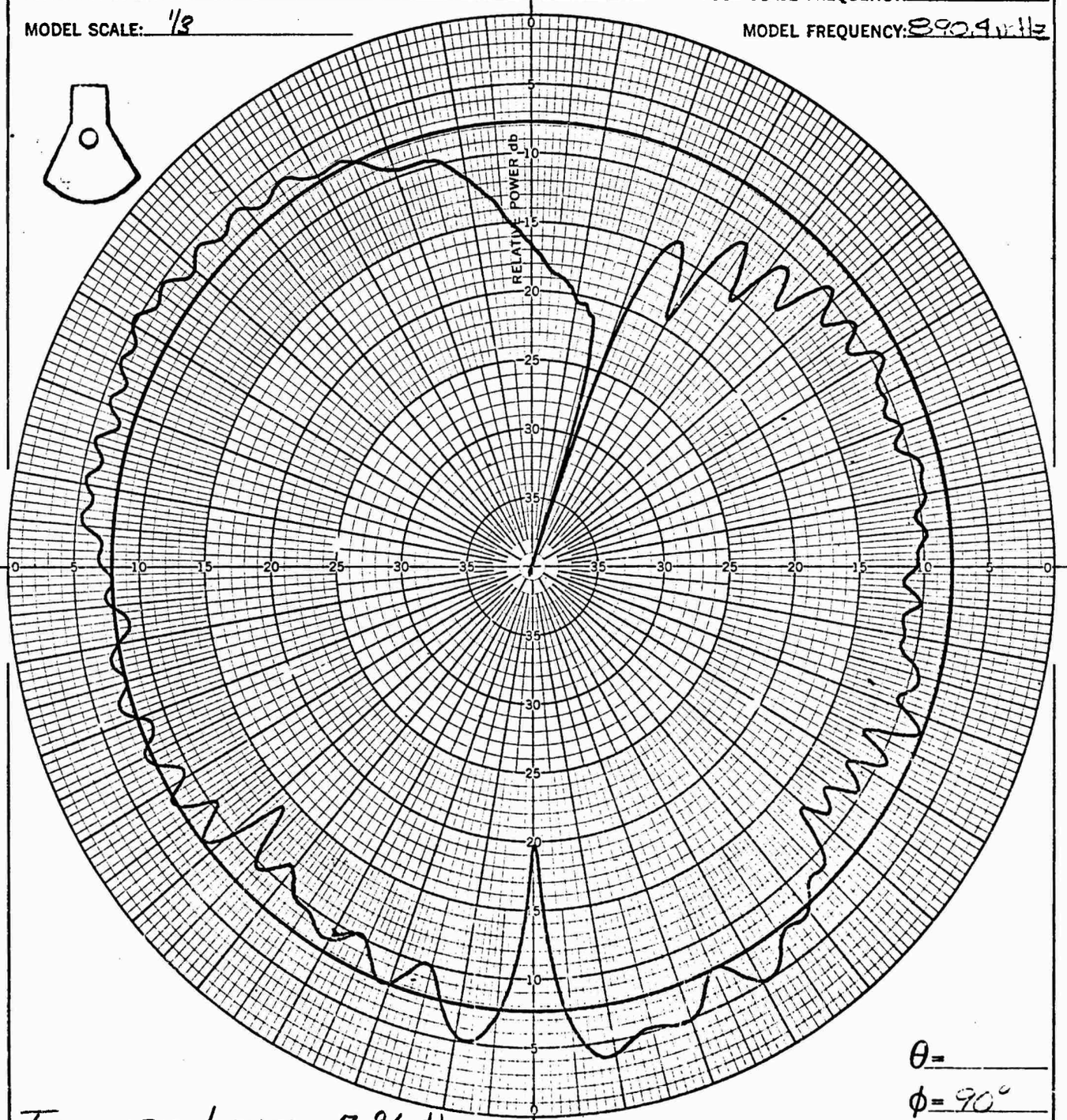
PAGE 36
REPORT TR 058-ADA.03
MODEL 195B

ANTENNA: NOSE STUB
ANTENNA LOCATION: NOSE
MODEL SCALE: 1/8

VEHICLE: GEMINI B W/MA
FULL SCALE FREQUENCY: 296.9 mHz
MODEL FREQUENCY: 890.9 mHz



θ =
φ = 90°

ISOTROPIC LEVEL - 7.86 db

CONFIGURATION: I
VHF VOICE W/O NOSE FAIRING

REMARKS: CALIBRATION -3 db

INTEGRATOR COUNT:
POLARIZATION: Eφ ☐ Eθ ☐ OTHER: LHC
PLOTTED IN: RELATIVE POWER db
TRANSMISSION DISTANCE: 500 ft
OBSERVER: EM & CS DATE: 6-[illegible]-67

MAC 231YL (7 MAY 64)

K & E CO.

DATE

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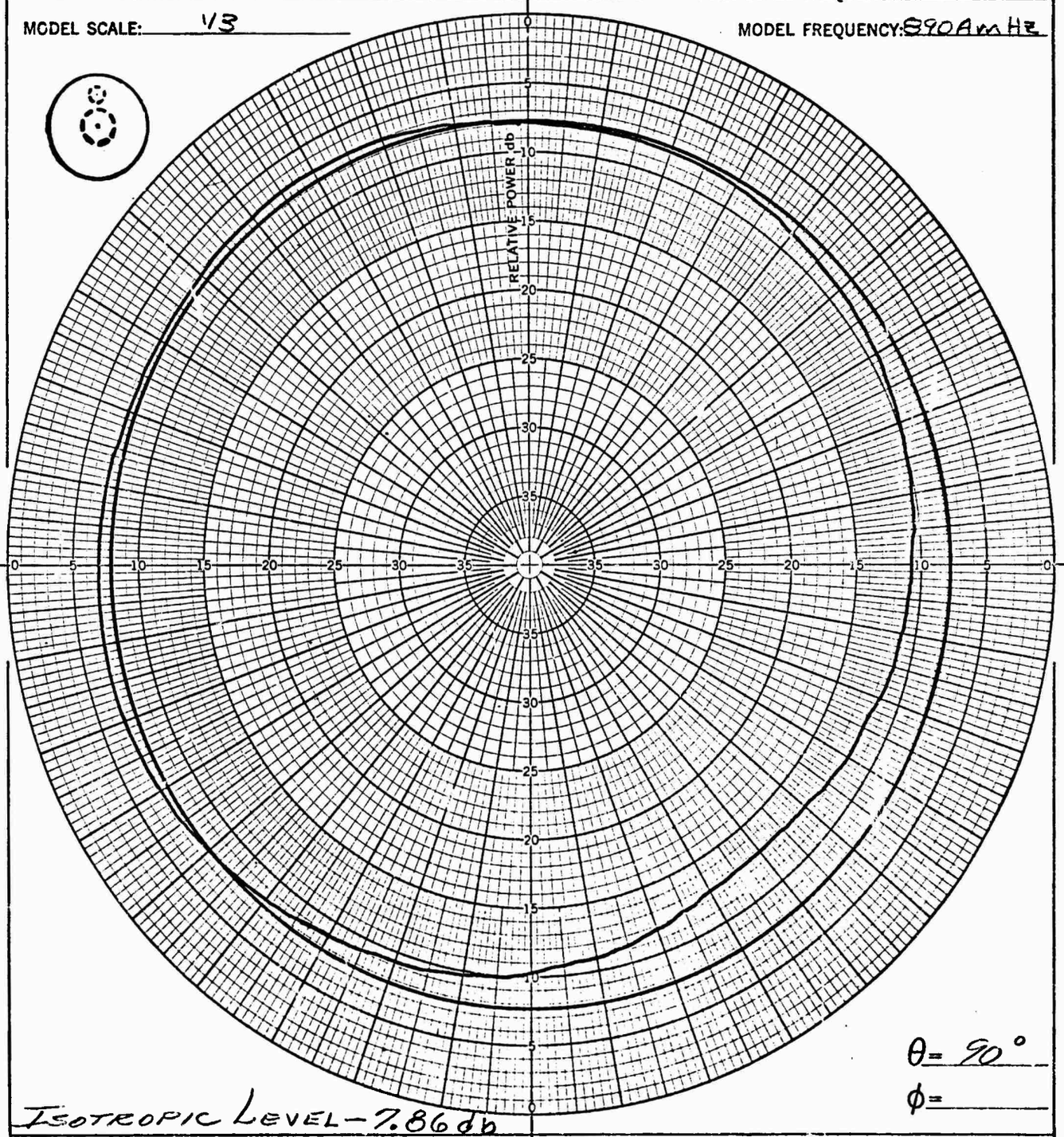
ST. LOUIS, MISSOURI

PAGE 37
REPORT TR 058-ADA.03
MODEL 195B

ANTENNA: NOSE STUB
ANTENNA LOCATION: NOSE
MODEL SCALE: 1/3

VEHICLE: GEMINI 8 W/MOL
FULL SCALE FREQUENCY: 296.8 m Hz
MODEL FREQUENCY: 890 Am Hz



θ = 90°
φ =

ISOTROPIC LEVEL - 7.86 db

CONFIGURATION: I
VHF VOICE W/O NOSE FAIRING

REMARKS: VIBRATION -3 db LINE

INTEGRATOR COUNT: 2999
POLARIZATION: Eφ ☐ Eθ ☐ OTHER: LHC
PLOTTED IN: RELATIVE POWER db
TRANSMISSION DISTANCE: 500 ft.
OBSERVER: EMECS DATE: 6-6-67

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DATE

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PAGE 38

REPORT TR 058-ADA.03

MODEL 195B

ANTENNA: NOSE STUB

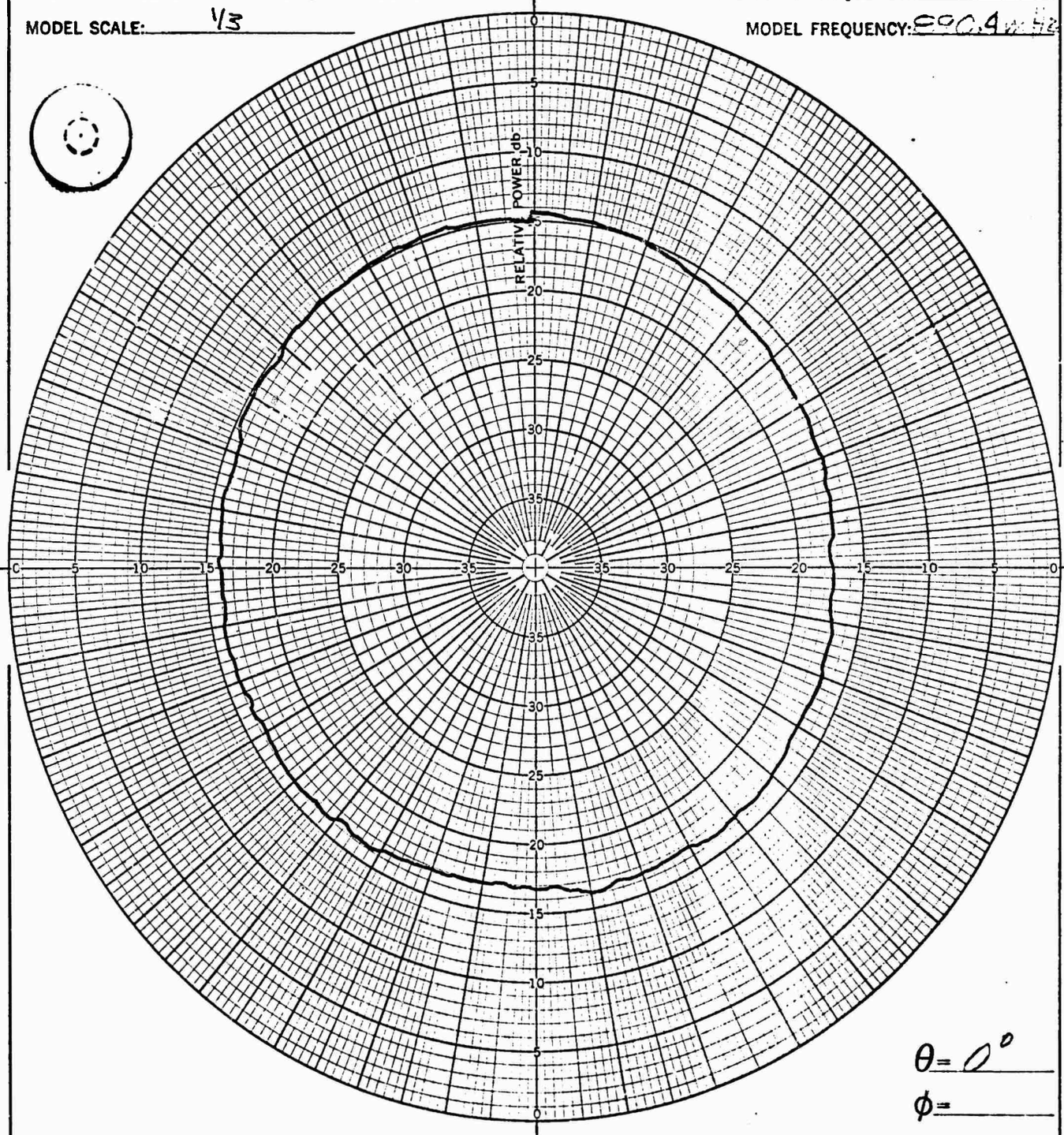
ANTENNA LOCATION: NOSE

MODEL SCALE: 1/3

VEHICLE: GEMINI P W/MOL

FULL SCALE FREQUENCY: 296 E mHz

MODEL FREQUENCY: 890.4 mHz



θ = 0°

φ =

CONFIGURATION: I

INTEGRATOR COUNT:

POLARIZATION: Eφ ☐ Eθ ☒ 0° OTHER: LHC

PLOTTED IN: RELATIVE POWER db

REMARKS: CALIBRATION -3db LIN

TRANSMISSION DISTANCE: 500 ft

OBSERVER: EMEC

DATE: 6-6-67

MAC 231YL (7 MAY 64)

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DATE

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PAGE 39

REPORT TR 058-ADA.03

MODEL 195B

ANTENNA: NOSE STUB

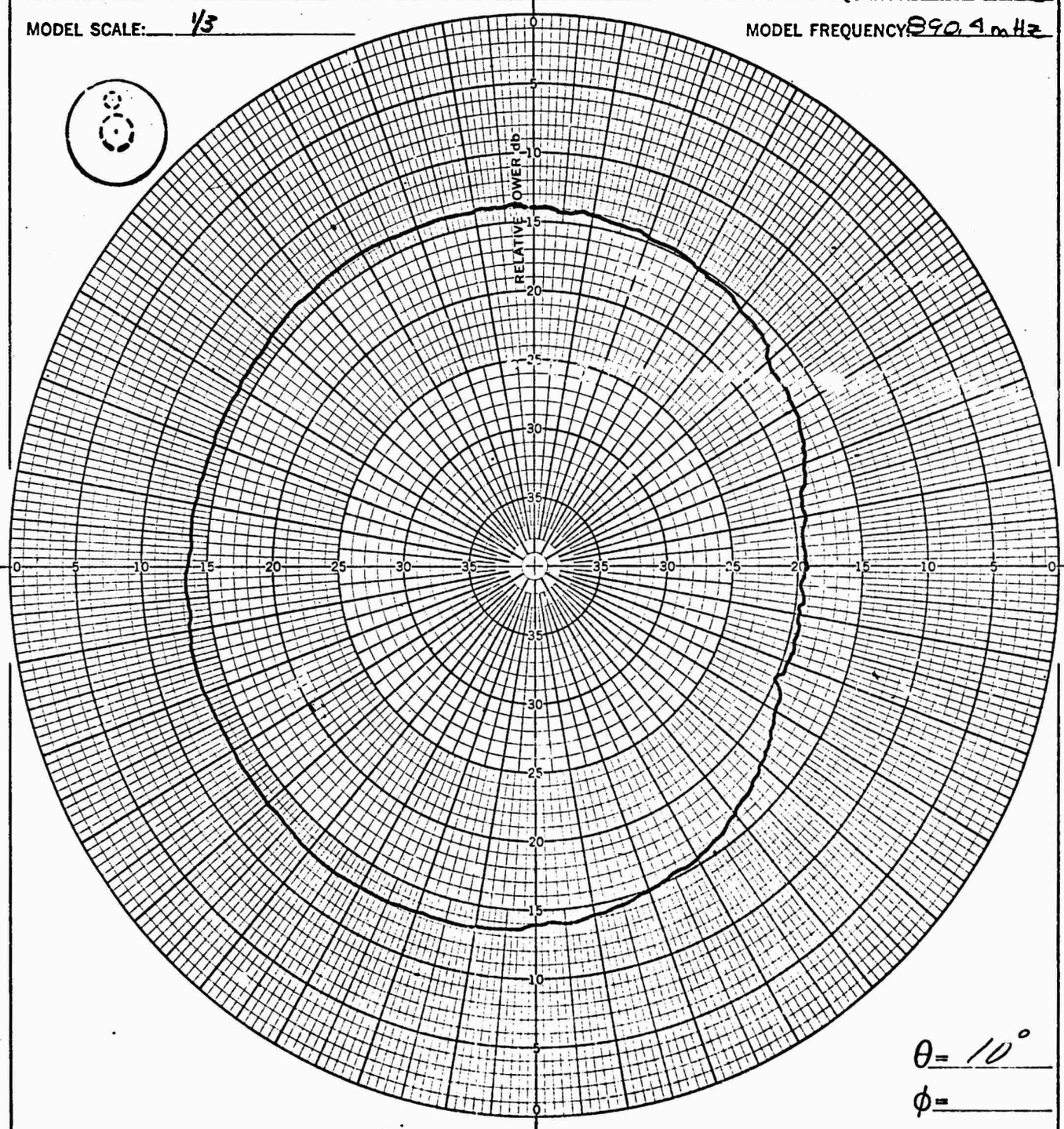
ANTENNA LOCATION: NOSE

MODEL SCALE: 1/3

VEHICLE: GEMINI B W/MOL

FULL SCALE FREQUENCY: 296.8 mHz

MODEL FREQUENCY: 890.4 mHz



θ = 10°

ϕ =

CONFIGURATION: I

INTEGRATOR COUNT: 0739

POLARIZATION: Eϕ ☐ Eθ ☐ OTHER: LHC

PLOTTED IN: RELATIVE POWER db

TRANSMISSION DISTANCE: 560 ft

REMARKS: CALIBRATION - 3db LINE

OBSERVER: EMS CS DATE: 6-6-67

MAC 251YL (7 MAY 64)

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PAGE 40

REPORT TR 058-ADA.03

MODEL 195B

ANTENNA: NOSE STUB

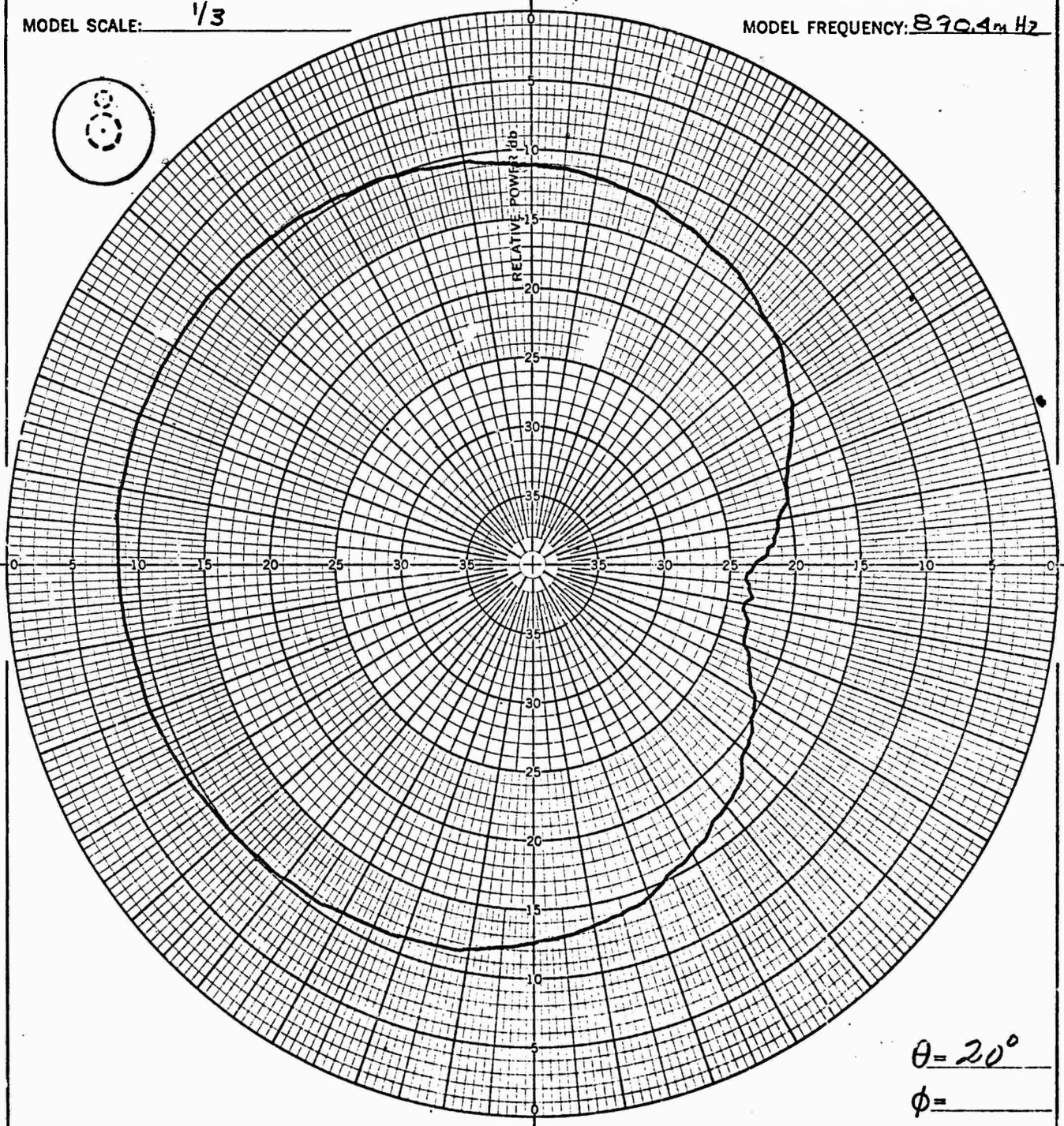
ANTENNA LOCATION: NOSE

MODEL SCALE: 1/3

VEHICLE: GEMINI B W/MOL

FULL SCALE FREQUENCY: 296.8 mHz

MODEL FREQUENCY: 890.4 m Hz



θ = 20°

ϕ =

CONFIGURATION: I

INTEGRATOR COUNT: 1526

POLARIZATION: Eϕ ☐ Eθ ☐ OTHER: LHC

PLOTTED IN: RELATIVE POWER db

REMARKS: CALIBRATION 3-db LINE

TRANSMISSION DISTANCE: 500 ft.

OBSERVER: EM & CS DATE: 6-6-67

MAC 231YL 17 MAY 64

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ST. LOUIS, MISSOURI

PAGE 41

REPORT TR 058-ADA.03

MODEL 195B

ANTENNA: NOSE STUB

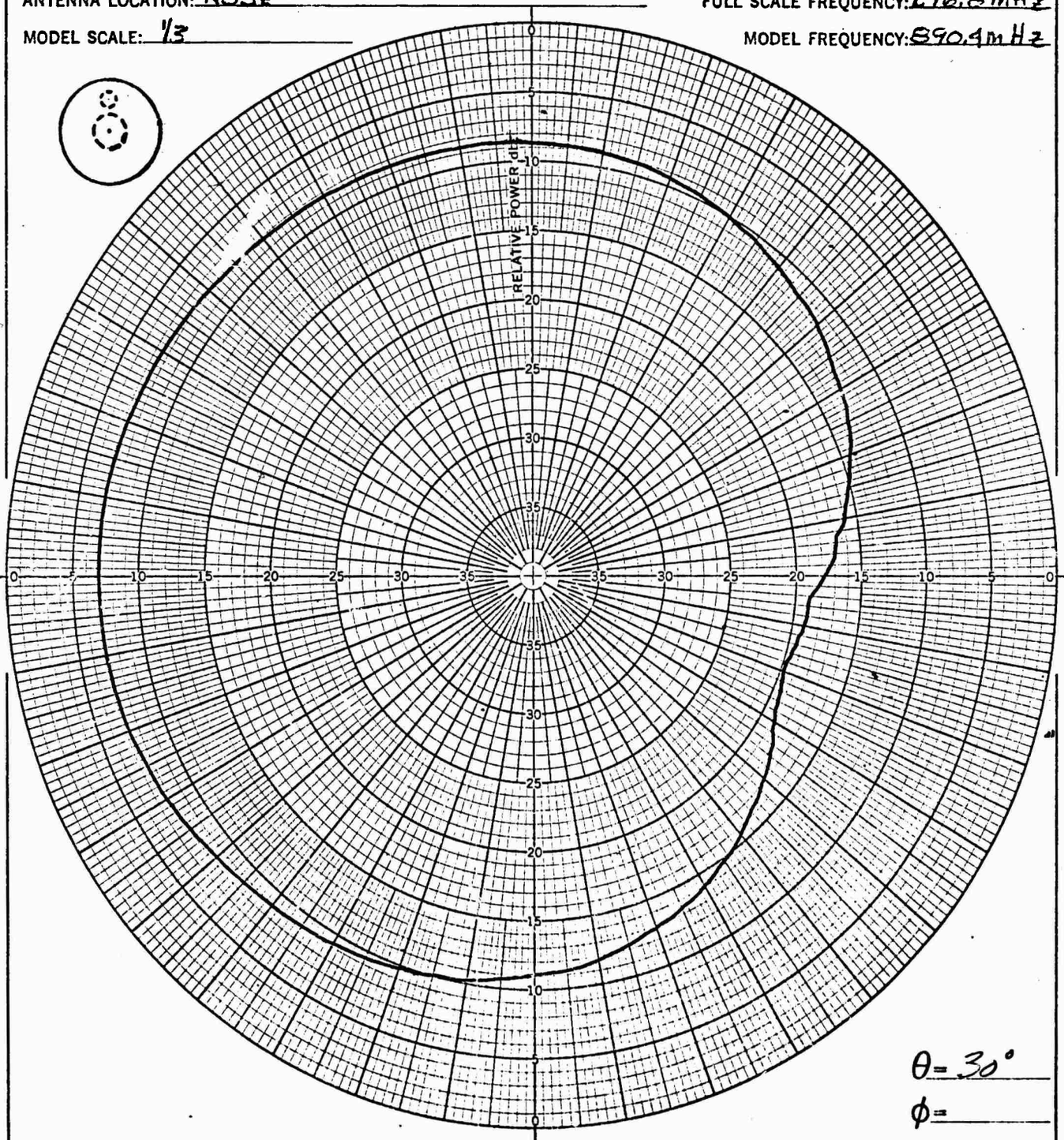
ANTENNA LOCATION: NOSE

MODEL SCALE: 1/3

VEHICLE: GEMINI B w/ MOL

FULL SCALE FREQUENCY: 296.8 mHz

MODEL FREQUENCY: 890.4 mHz



θ = 30°

ϕ =

CONFIGURATION: I

INTEGRATOR COUNT: 2252

POLARIZATION: Eϕ ☐ Eθ ☐ OTHER: LHC

PLOTTED IN: RELATIVE POWER db

REMARKS: CALIBRATION - 3db LINE

TRANSMISSION DISTANCE: 500 ft.

OBSERVER: EMES CS DATE: 6-6-67

MAC 231YL 17 MAY 64

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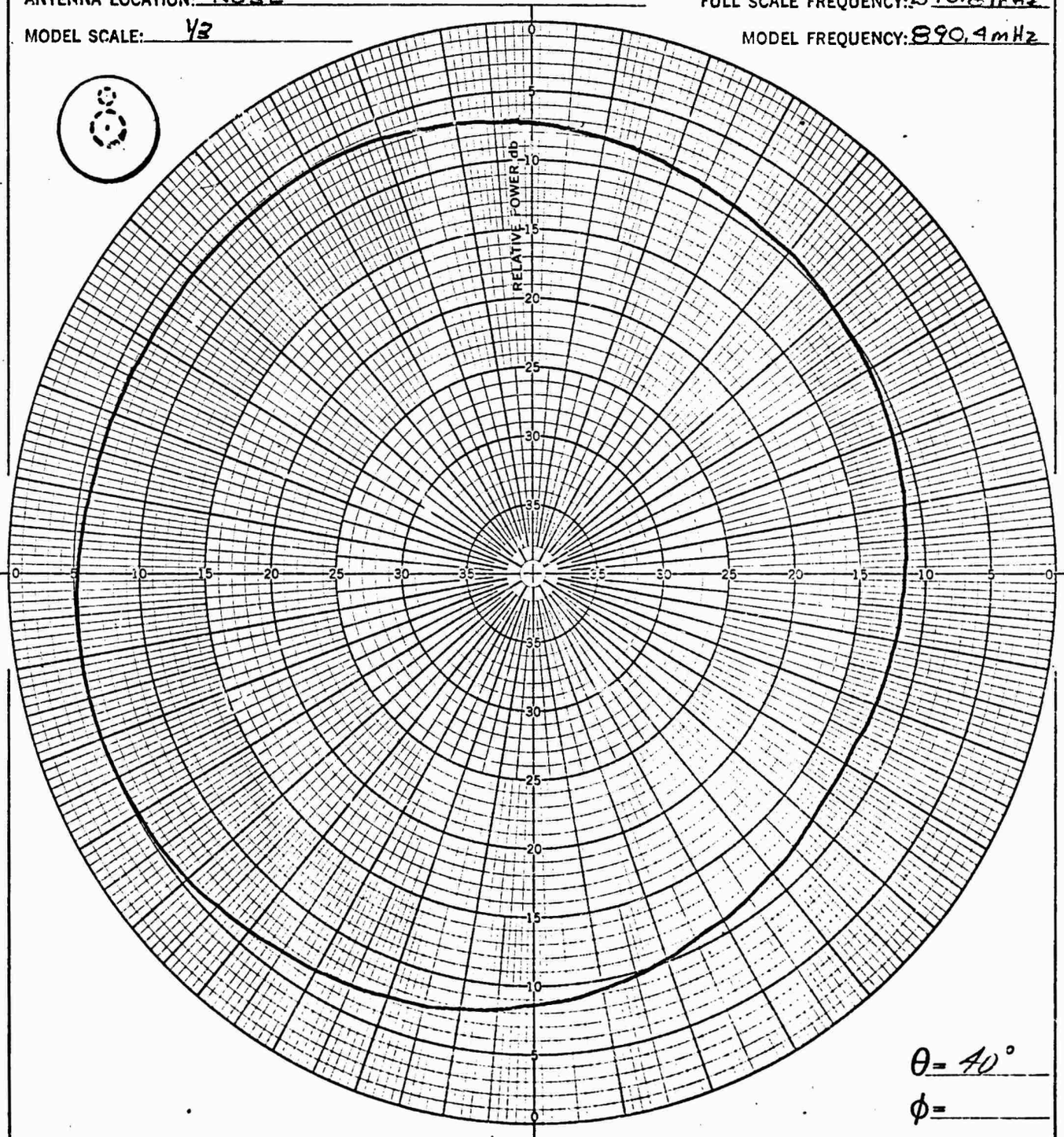
ST. LOUIS, MISSOURI

PAGE 42
REPORT TR 058-ADA.03
MODEL 195B

ANTENNA: NOSE STUB
ANTENNA LOCATION: NOSE
MODEL SCALE: 1/3

VEHICLE: GEMINI B W/MOL
FULL SCALE FREQUENCY: 296.8 mHz
MODEL FREQUENCY: 890.4 mHz



θ = 40°
ϕ =

CONFIGURATION: I

REMARKS: CALIBRATION -3db LINE

INTEGRATOR COUNT: 3611
POLARIZATION: Eϕ ☐ Eθ ☐ OTHER: LHC
PLOTTED IN: RELATIVE POWER db
TRANSMISSION DISTANCE: 500 ft
OBSERVER: EM & CS DATE: 6-6-67

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ST. LOUIS, MISSOURI

PAGE 43

REPORT TR 058-ADA.03

MODEL 195B

ANTENNA: NOSE STUB

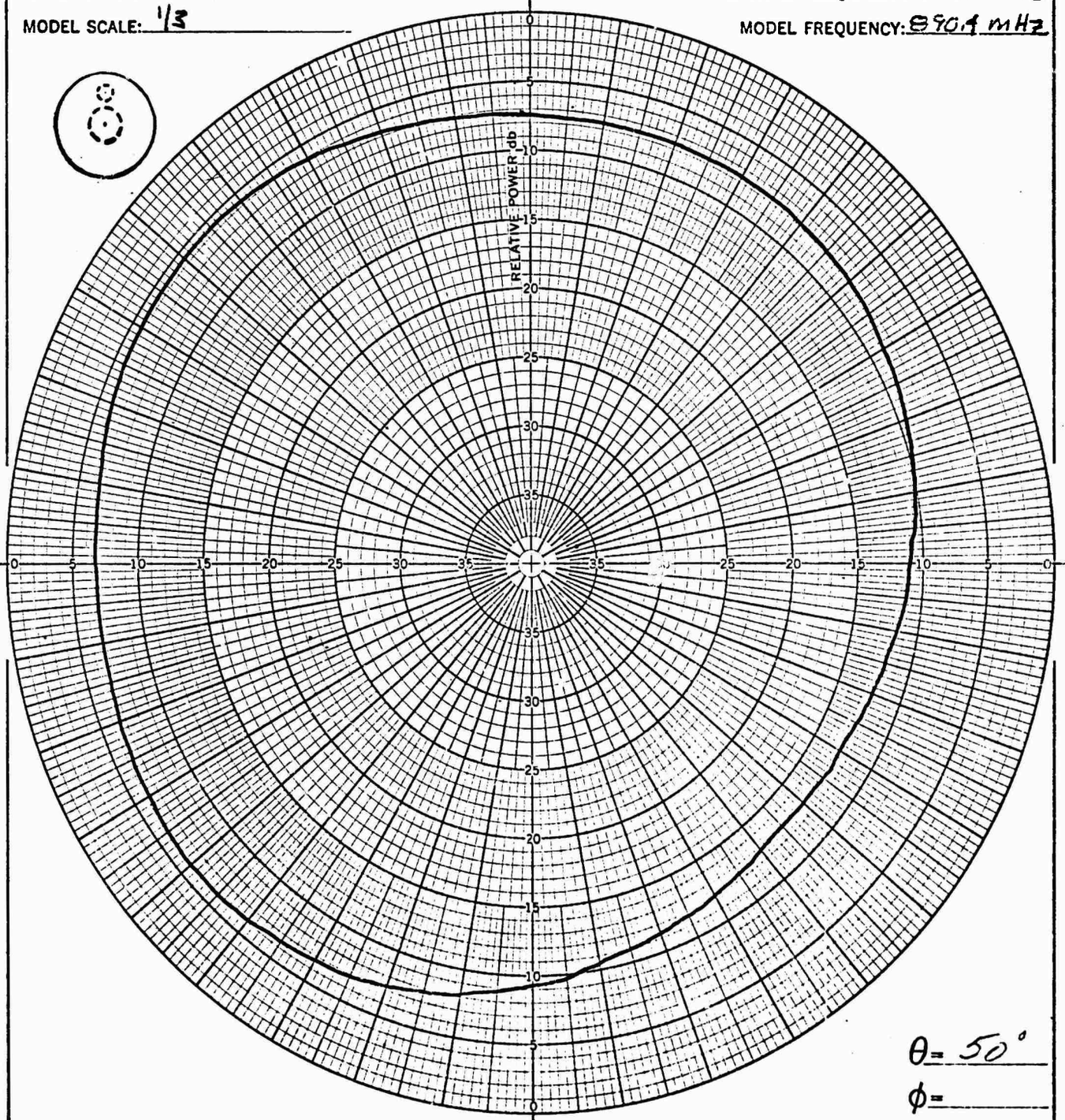
ANTENNA LOCATION: NOSE

MODEL SCALE: 1/3

VEHICLE: GEMINI B W/MOL

FULL SCALE FREQUENCY: 296.8 mHz

MODEL FREQUENCY: 890.4 mHz



θ = 50°

ϕ =

CONFIGURATION: I

REMARKS: CALIBRATION -3db LINE

INTEGRATOR COUNT: 3530

POLARIZATION: Eϕ ☐ Eθ ☐ OTHER: LHC

PLOTTED IN: RELATIVE POWER db

TRANSMISSION DISTANCE: 500 ft

OBSERVER: EM&CS DATE: 6-6-67

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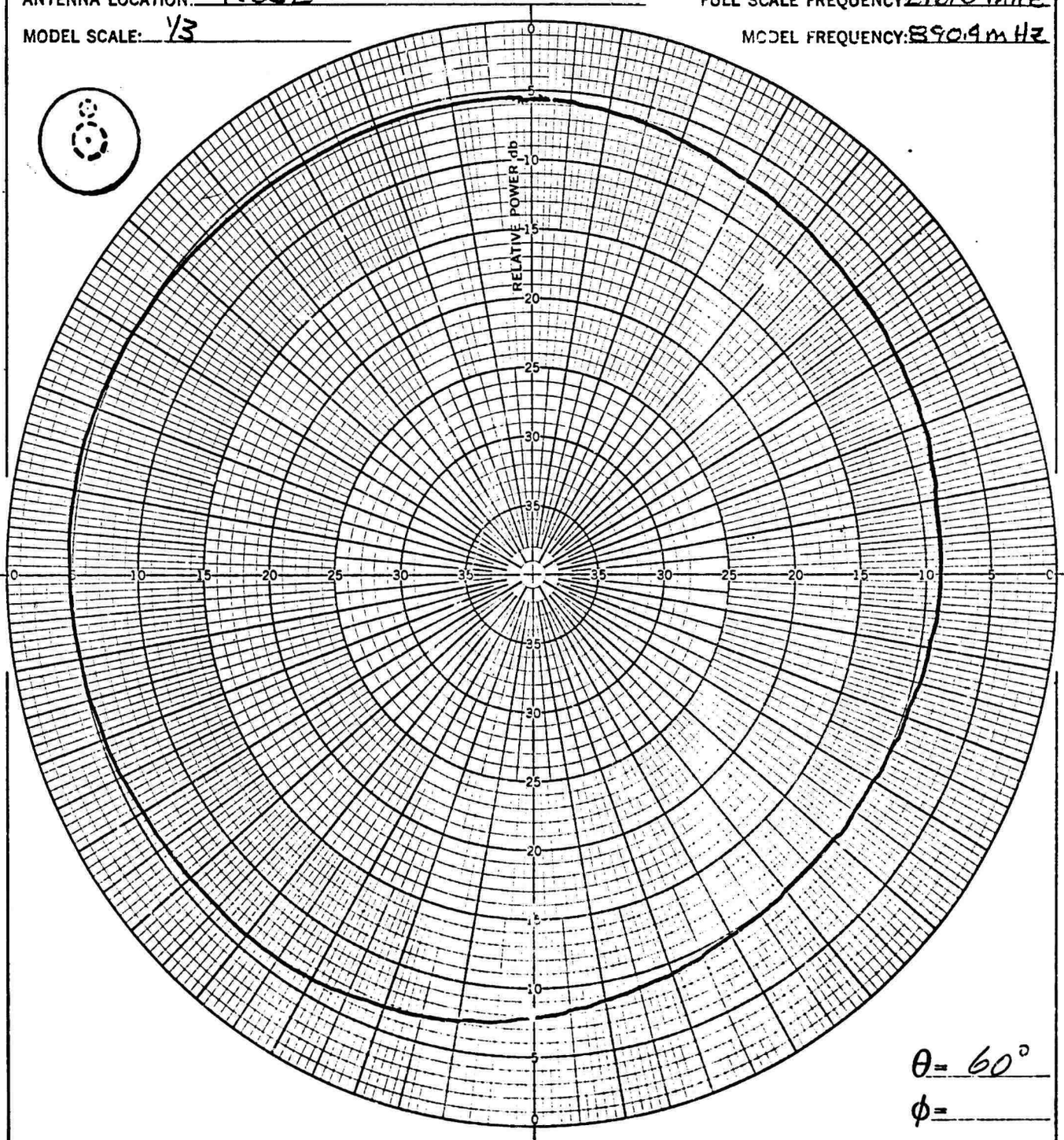
ST. LOUIS, MISSOURI

PAGE 44
REPORT TR 058-ABA.03
MODEL 195B

ANTENNA: NOSE STUB
ANTENNA LOCATION: NOSE
MODEL SCALE: 1/3

VEHICLE: GEMINI B W/MOL
FULL SCALE FREQUENCY: 296.8 mHz
MODEL FREQUENCY: 890.4 mHz



θ = 60°
φ =

CONFIGURATION: I

REMARKS: CALIBRATION -3db LINE

INTEGRATOR COUNT: 4553
POLARIZATION: Eφ ☐ Eθ ☐ OTHER: LHc
PLOTTED IN: RELATIVE POWER db
TRANSMISSION DISTANCE: 500 ft
OBSERVER: EM & CS DATE: 6-6-67

MAC 231YL (7 MAY 64)

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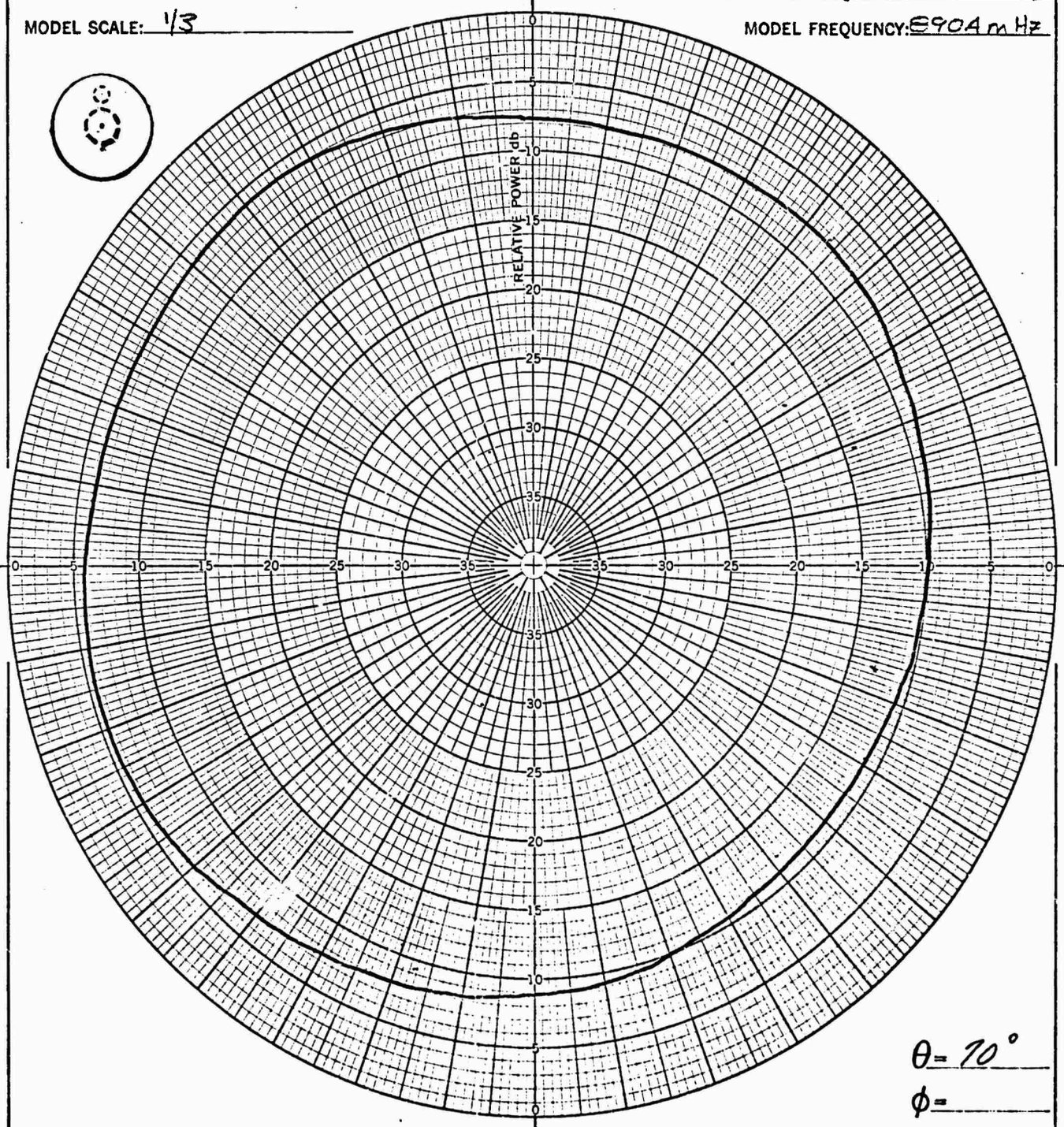
ST. LOUIS, MISSOURI

PAGE 45
REPORT TR 058-ADA.03
MODEL 195B

ANTENNA: NOSE STUB
ANTENNA LOCATION: NOSE
MODEL SCALE: 1/3

VEHICLE: GEMINI B W/MOL
FULL SCALE FREQUENCY: 296.8 mHz
MODEL FREQUENCY: 890.4 mHz



θ = 70°
φ =

CONFIGURATION: I

REMARKS: CALIBRATION - 3db LINE

INTEGRATOR COUNT: 3723
POLARIZATION: Eφ ☐ Eθ ☐ OTHER: LHC
PLOTTED IN: RELATIVE POWER db
TRANSMISSION DISTANCE: 500 ft.
OBSERVER: EM & CS DATE: 6-6-67

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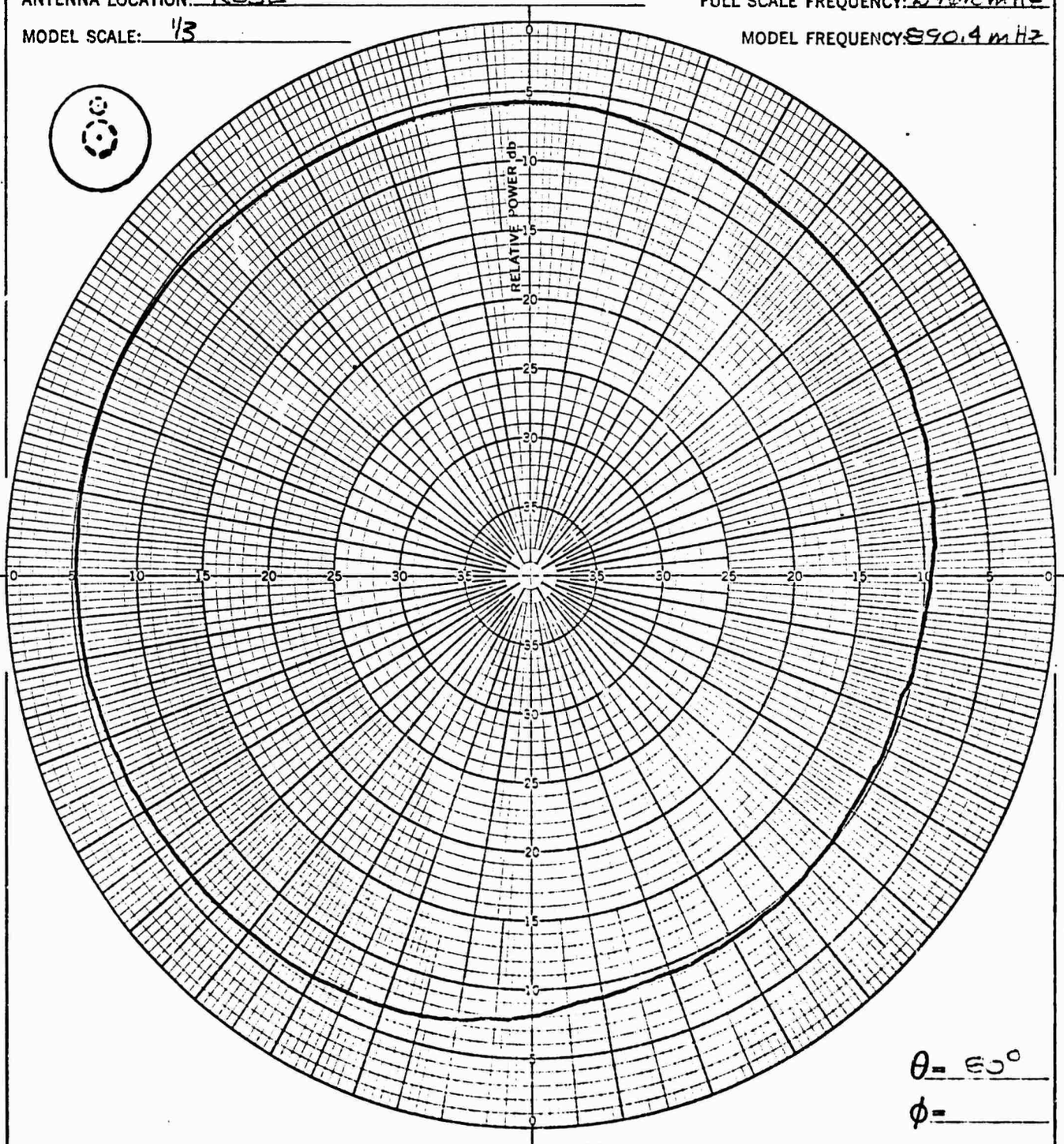
MCDONNELL
ST. LOUIS, MISSOURI

PAGE 46
REPORT TR 058-ADA.03
MODEL 195B

ANTENNA: NOSE STUB
ANTENNA LOCATION: NOSE
MODEL SCALE: 1/3

VEHICLE: GEMINI W/MOL
FULL SCALE FREQUENCY: 296.Em Hz
MODEL FREQUENCY: 890.4 m Hz



θ= 60°
ϕ=

CONFIGURATION: I

INTEGRATOR COUNT: 4314
POLARIZATION: Eϕ ☐ Eθ ☐ OTHER: LHC
PLOTTED IN: RELATIVE POWER db
TRANSMISSION DISTANCE: 500 ft.
OBSERVER: E.N.& C.S. DATE: 6-6-67

REMARKS: CALIBRATION -3 db LINE

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DATE

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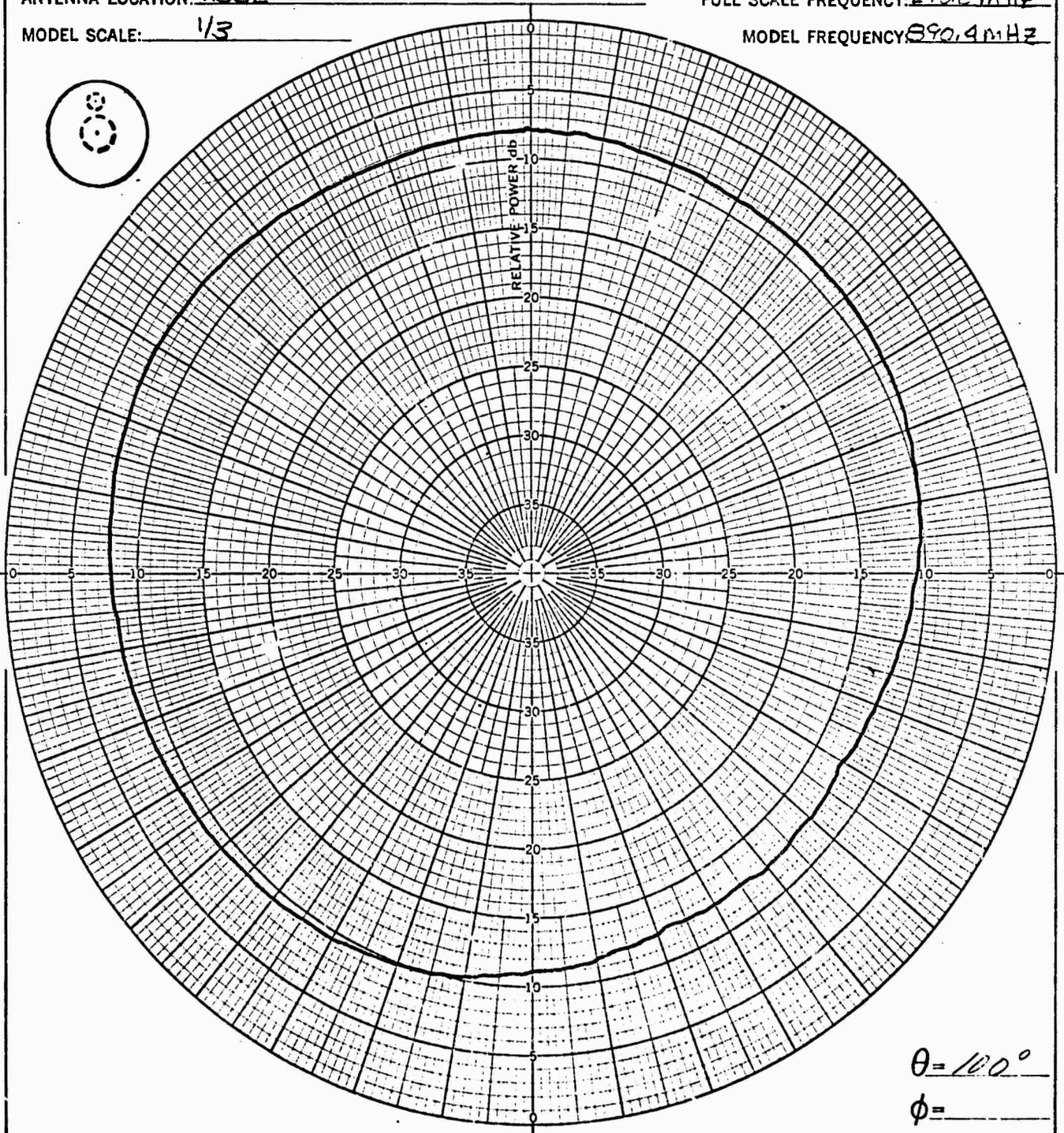
MCDONNELL
ST. LOUIS, MISSOURI

PAGE 47
REPORT TR 058-ADA.03
MODEL 195B

ANTENNA: NOSE STUB
ANTENNA LOCATION: NOSE
MODEL SCALE: 1/3

VEHICLE: GEMINI B W/MOL
FULL SCALE FREQUENCY: 296.8 mHz
MODEL FREQUENCY: 890.4 mHz



CONFIGURATION: I

REMARKS: CALIBRATION -3db LINE

INTEGRATOR COUNT: 2642
POLARIZATION: Eϕ ☐ Eθ ☐ OTHER: LHC
PLOTTED IN: RELATIVE POWER db
TRANSMISSION DISTANCE: 500 ft
OBSERVER: FM & CS DATE: 6-6-67

MAC 231YL (7 MAY 64)

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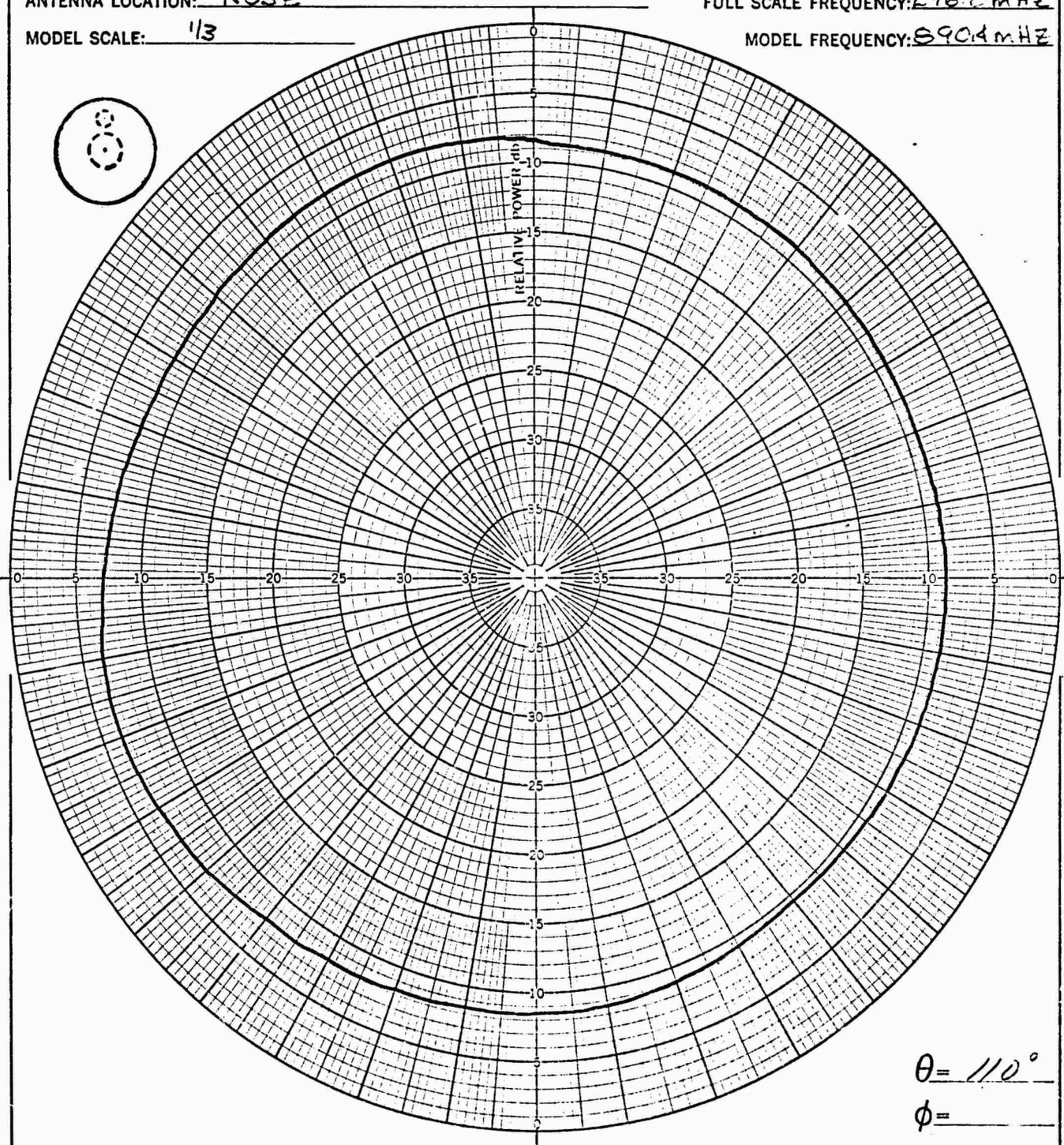
MCDONNELL
ST. LOUIS, MISSOURI

PAGE 48
REPORT TR 058-ADA.03
MODEL 195B

ANTENNA: NOSE STUB
ANTENNA LOCATION: NOSE
MODEL SCALE: 1/3

VEHICLE: GEMINI B W/MOL
FULL SCALE FREQUENCY: 296.8 mHz
MODEL FREQUENCY: 89.04 mHz



θ = 110°
ϕ =

CONFIGURATION: I

REMARKS: CALIBRATION -3db LINE

INTEGRATOR COUNT: 3255
POLARIZATION: Eϕ ☐ Eθ ☐ OTHER: LHC
PLOTTED IN: RELATIVE POWER db
TRANSMISSION DISTANCE: 500'
OBSERVER: EM & CS DATE: 6-6-67

MAC 231YL (7 MAY 64)

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MCDONNELL
ST. LOUIS, MISSOURI

PAGE 49

REPORT TR 058-ADA.03

MODEL 195B

ANTENNA: NOSE STUB

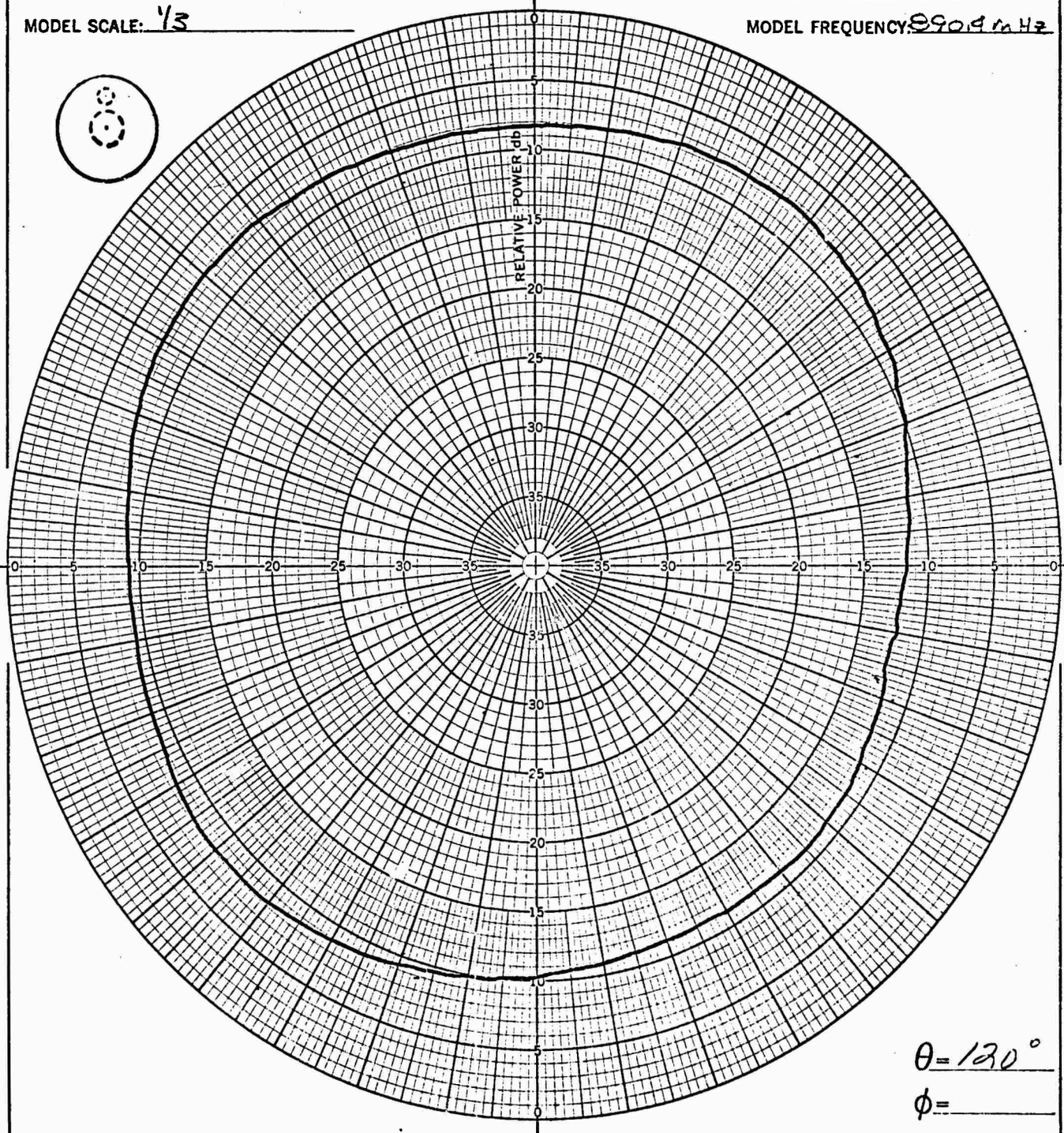
ANTENNA LOCATION: NOSE

MODEL SCALE: 1/3

VEHICLE: GEMINI B W/MOL

FULL SCALE FREQUENCY: 296.8 m Hz

MODEL FREQUENCY: 890.4 m Hz



θ = 120°

ϕ = _____

CONFIGURATION: I

REMARKS: CALIBRATION -3 db LINE

INTEGRATOR COUNT: 2726

POLARIZATION: Eϕ ☐ Eθ ☐ OTHER: LHC

PLOTTED IN: RELATIVE POWER db

TRANSMISSION DISTANCE: 500 ft

OBSERVER: EM & CS DATE: 6-6-67

MAC 231YL 17 MAY 64J

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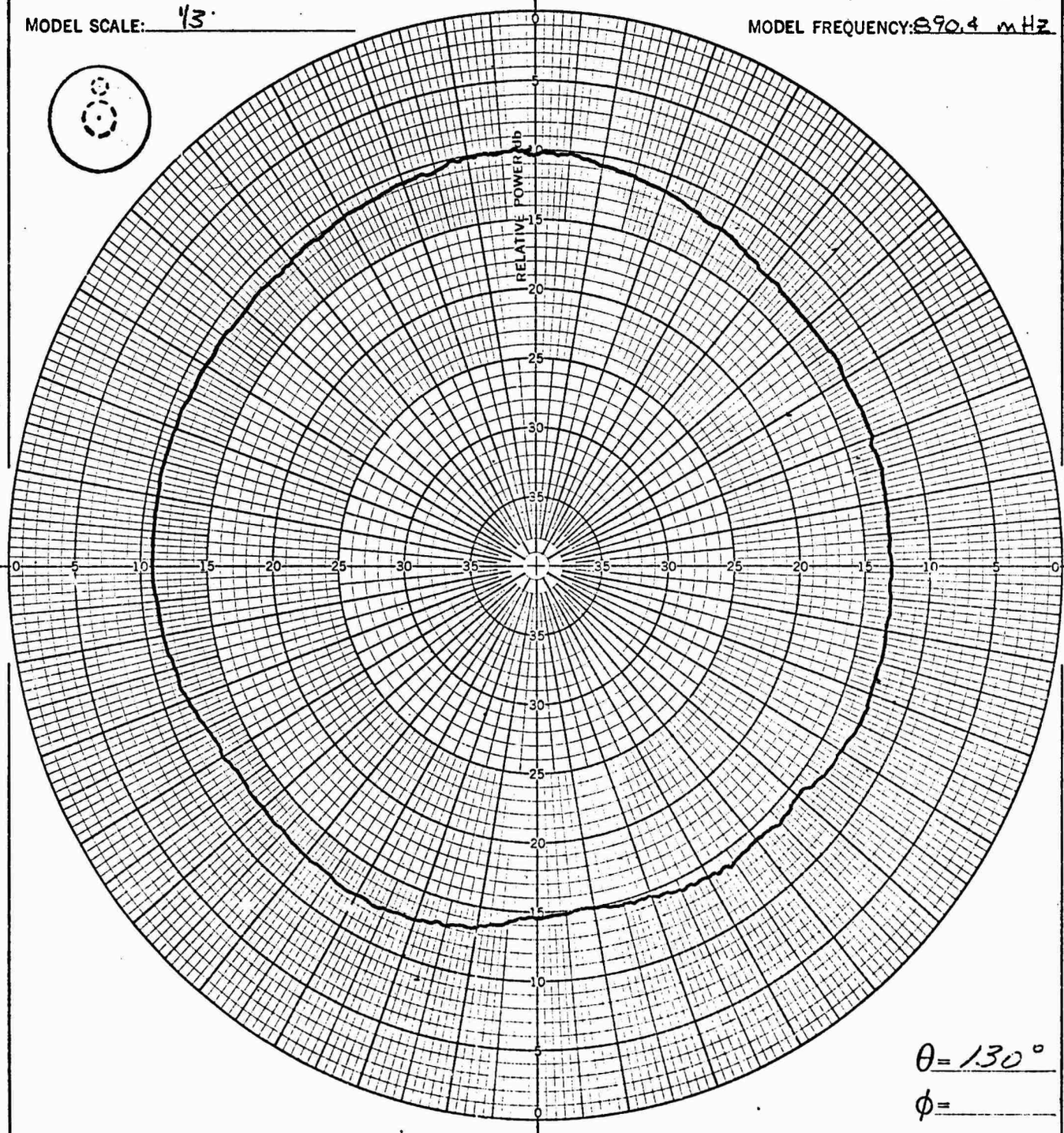
ST. LOUIS, MISSOURI

PAGE 50
REPORT TR 058-ADA.03
MODEL 195B

ANTENNA: NOSE STUB
ANTENNA LOCATION: NOSE
MODEL SCALE: 1/3

VEHICLE GEMINI B W/MOL
FULL SCALE FREQUENCY: 296.8 mHz
MODEL FREQUENCY: 890.4 mHz



θ = 130°
ϕ =

CONFIGURATION: I

REMARKS: CALIBRATION -3db LINE

INTEGRATOR COUNT: 1336
POLARIZATION: Eϕ ☐ Eθ ☐ OTHER: LHC
PLOTTED IN: RELATIVE POWER db
TRANSMISSION DISTANCE: 500 ft
OBSERVER: EM & CS DATE: 6-6-67

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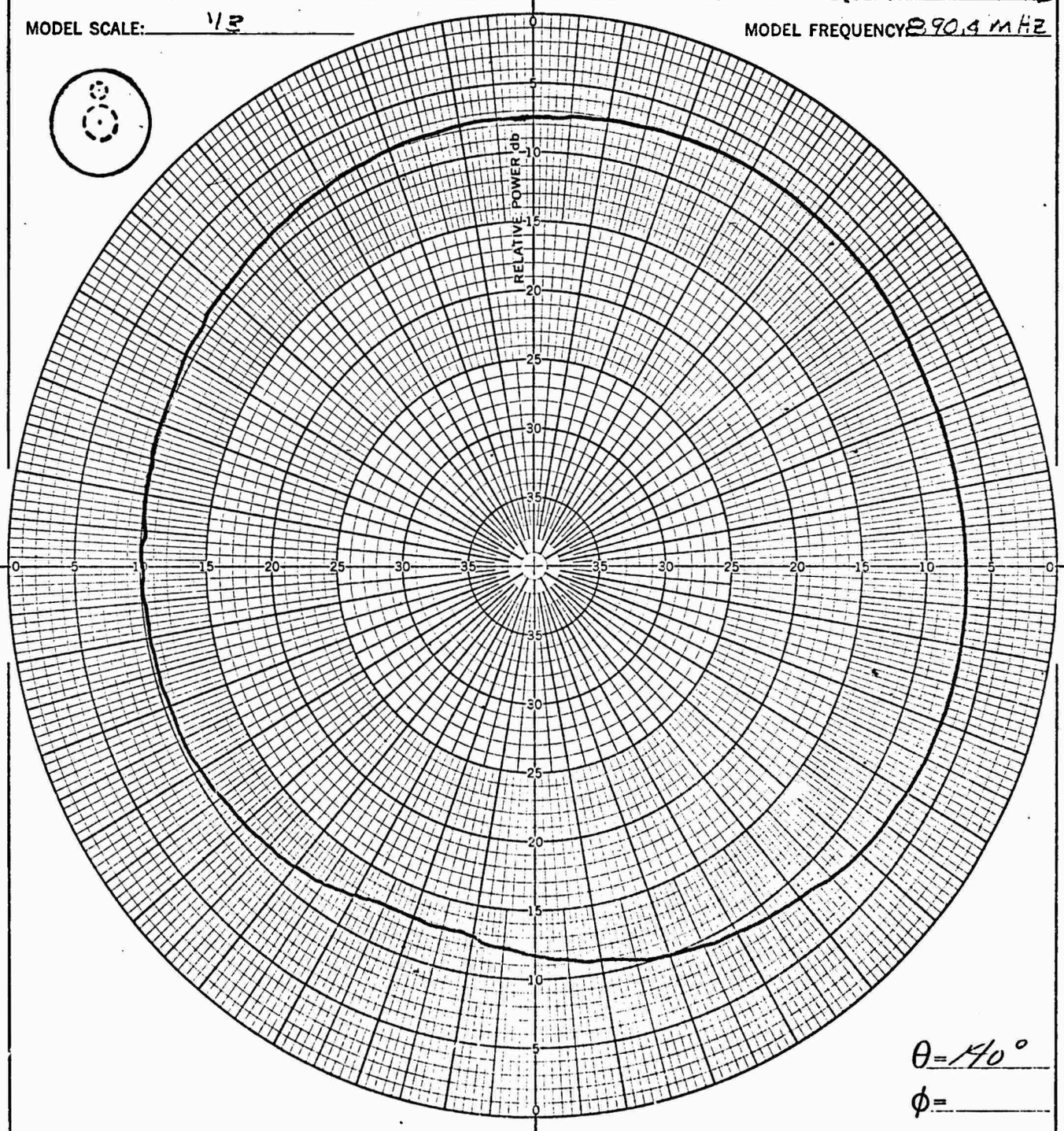
PAGE 51
REPORT TR 058-ADA.03
MODEL 195B

ANTENNA: NOSE STUB
ANTENNA LOCATION: NOSE
MODEL SCALE: 1/2

VEHICLE: GEMINI B W/MCL
FULL SCALE FREQUENCY: 296.8 mHz
MODEL FREQUENCY: 890.4 mHz



θ = 140°
ϕ =

CONFIGURATION: I

INTEGRATOR COUNT: 2986
POLARIZATION: Eϕ ☐ Eθ ☐ OTHER: LHC
PLOTTED IN: RELATIVE POWER db
TRANSMISSION DISTANCE: 500 ft
OBSERVER: EM & CS DATE: 6-6-67

REMARKS: CALIBRATION -3db LINE

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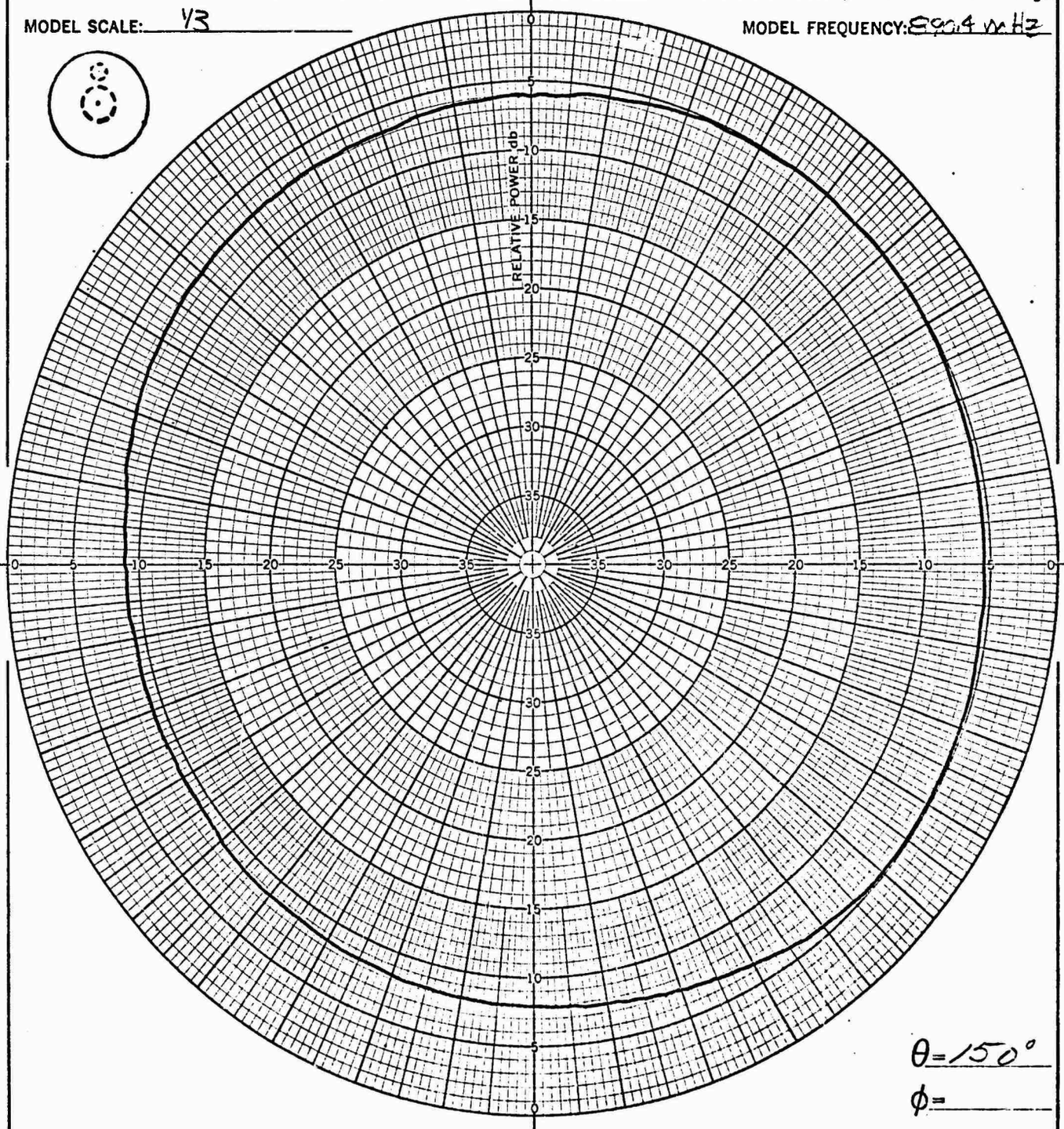
PAGE 52
REPORT TR 058-ADA.03
MODEL 195B

ANTENNA: NOSE STUB
ANTENNA LOCATION: NOSE
MODEL SCALE: 1/3

VEHICLE: GEMINI B W/MOL
FULL SCALE FREQUENCY: 296.8 mHz
MODEL FREQUENCY: 890.4 mHz



θ = 150°
φ =

CONFIGURATION: I

REMARKS: CALIBRATION -3db LINE

INTEGRATOR COUNT: 4674
POLARIZATION: Eφ ☐ Eθ ☐ OTHER: LHC
PLOTTED IN: RELATIVE POWER db
TRANSMISSION DISTANCE: 500 ft
OBSERVER: EMILS DATE: 6-6-67

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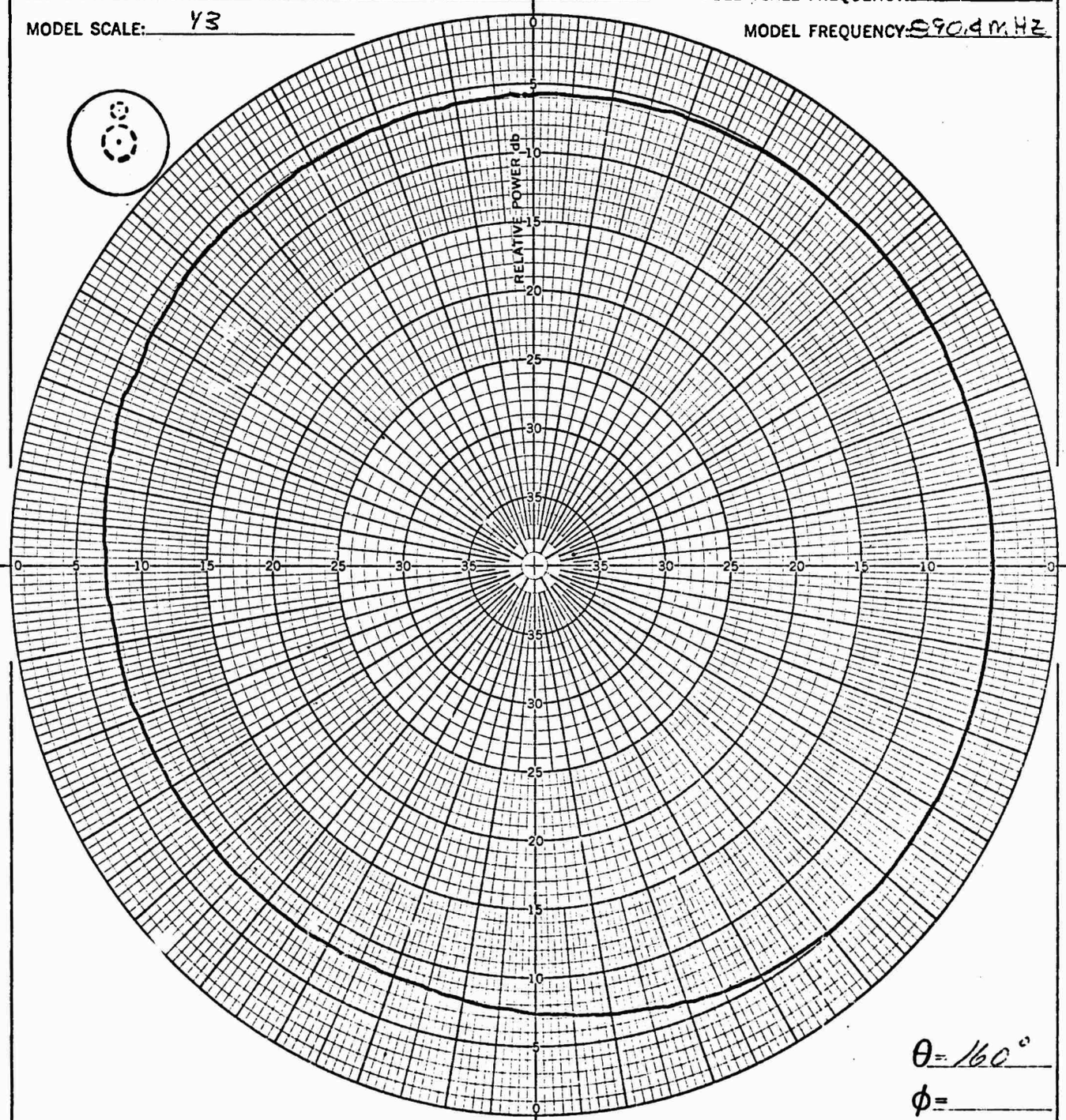
PAGE 53
REPORT TR 058-ADA.03
MODEL 195B

ANTENNA: NOSE STUB
ANTENNA LOCATION: NOSE
MODEL SCALE: Y3

VEHICLE: GEMINI B W/MCL
FULL SCALE FREQUENCY: 296.8 mHz
MODEL FREQUENCY: 890.4 mHz



θ = 160°
ϕ =

CONFIGURATION: I

REMARKS: CALIBRATION - 3db LINE

INTEGRATOR COUNT: 5292
POLARIZATION: Eϕ ☐ Eθ ☐ OTHER: LHC
PLOTTED IN: RELATIVE POWER db
TRANSMISSION DISTANCE: 500 ft.
OBSERVER: EMSCS DATE: 6-6-67

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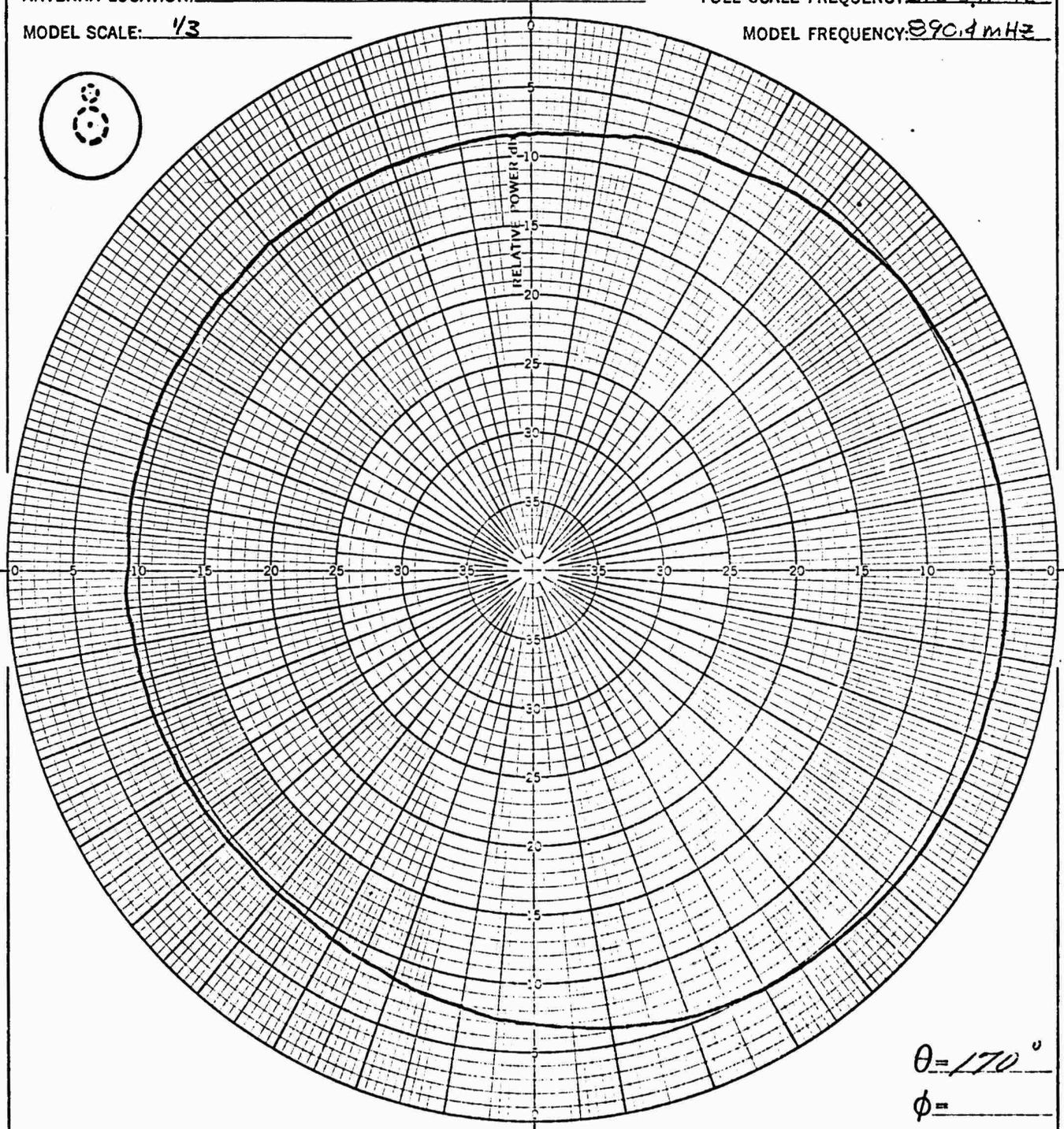
PAGE 54
REPORT TR 058-ADA.03
MODEL 195B

ANTENNA: NOSE STUB
ANTENNA LOCATION: NOSE
MODEL SCALE: 1/3

VEHICLE: GEMINI 3 W/MOL
FULL SCALE FREQUENCY: 296.8 mHz
MODEL FREQUENCY: 890.4 mHz



θ = 170°
ϕ =

CONFIGURATION: I

REMARKS: CALIBRATION -3db LINE

INTEGRATOR COUNT: 4650
POLARIZATION: Eϕ ☐ Eθ ☐ OTHER: LHC
PLOTTED IN: RELATIVE POWER db
TRANSMISSION DISTANCE: 500 ft
OBSERVER: EMECS DATE: 6-6-67

MAC 231YL (7 MAY 64)

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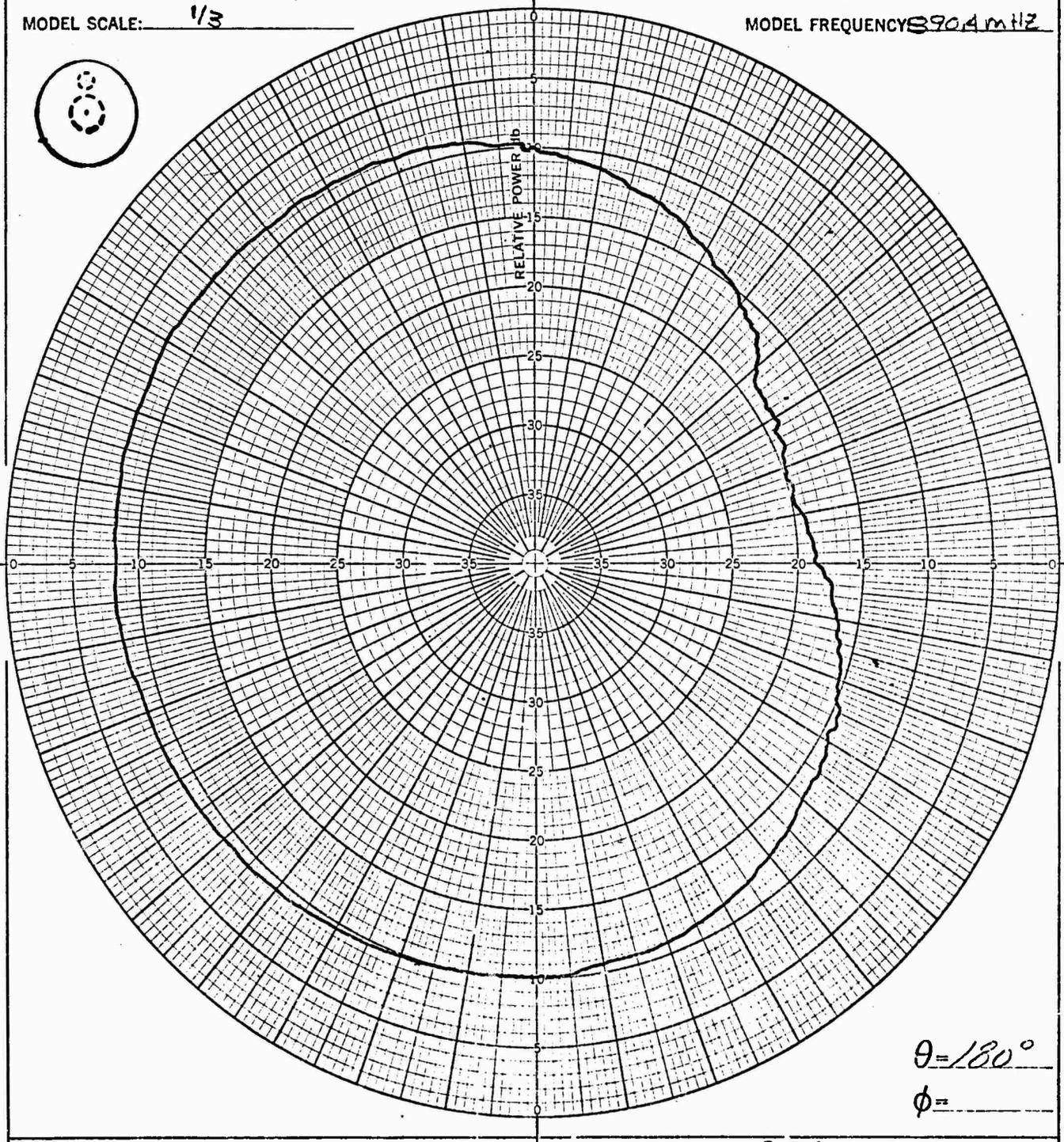
ST. LOUIS, MISSOURI

PAGE 55
REPORT TR 058-ADA.03
MODEL 195B

ANTENNA: NOSE STUB
ANTENNA LOCATION: NOSE
MODEL SCALE: 1/3

VEHICLE: GEMINI B W/NOL
FULL SCALE FREQUENCY: 296.8 mHz
MODEL FREQUENCY 890.4 mHz



θ = 180°
ϕ =

CONFIGURATION: I

REMARKS: CALIBRATION -3db LINE

INTEGRATOR COUNT: 1936
POLARIZATION: Eϕ ☐ Eθ ☐ OTHER: LHC
PLOTTED IN: RELATIVE POWER db
TRANSMISSION DISTANCE: 500 ft
OBSERVER: EM & CS DATE: 6-6-67

MAC 231YL (7 MAY 64)

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ISOTROPIC CALCULATION

I_2 = Count for calibration radius = 10,000

For Electronic Integrator and db Recording

$K = \frac{2}{\pi} = 0.63662$ $KI_2 = 6366.2$

$\frac{KI_2}{I_1}$ = Power Ratio 10 Log_{10} Power Ratio = Istropic db below calibration level

A = Integrator Count Recorder Chart Level for calibration - 3 db

CONFIGURATION I

sin θ	θ	A_{θ} Pol. LHC	A_{ϕ} Pol.	A_{θ} Pol. LHC	A_{ϕ} Pol.	θ
0.17365	10°	0739		4650		170°
0.34202	20°	1526		5292		160°
0.50000	30°	2252		4674		150°
0.64279	40°	3611		2986		140°
0.76604	50°	3530		1336		130°
0.86603	60°	4553		2726		120°
0.93969	70°	3723		3255		110°
0.98481	80°	4314		2642		100°
1.00000	90°	2999				

$\sum_{180}^{0} (A_{\theta} \sin \theta + A_{\phi} \sin \theta)$ 37409.06 ÷ 18 = I_1 2,078.28

$\frac{6366.2}{I_1}$ = Power Ratio 3.06

Isotropic = 10 Log_{10} Power Ratio = 4.86 db Below calibration level

Isotropic Chart Level = - 7.86 db

FREQ. 890.4 MHz W/O FAIRING

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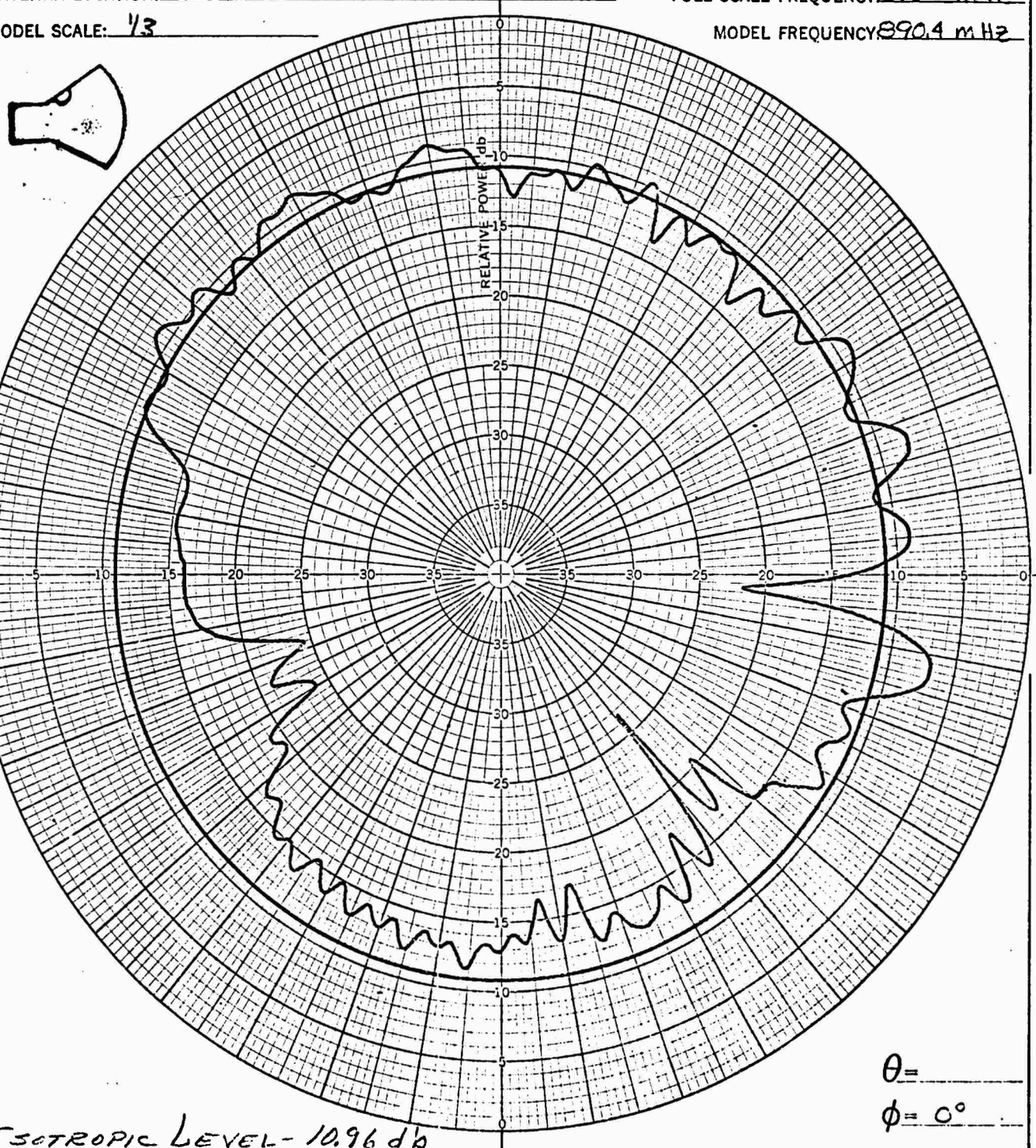
ST. LOUIS, MISSOURI

PAGE 57
REPORT TR 058-ADA.03
MODEL 195B

ANTENNA: NOSE STUB
ANTENNA LOCATION: NOSE
MODEL SCALE: 1/3

VEHICLE: GEMINI B W/MOL
FULL SCALE FREQUENCY: 296.8 mHz
MODEL FREQUENCY: 890.4 mHz



θ=

φ= 0°

ISOTROPIC LEVEL - 10.96 db

CONFIGURATION: II
VHF VOICE W/NOSE FAIRING

REMARKS: CALIBRATION -3 db LINE

INTEGRATOR COUNT:
POLARIZATION: Eφ ☐ Eθ ☐ OTHER: LHC
PLOTTED IN: RELATIVE POWER db
TRANSMISSION DISTANCE: 500 ft.
OBSERVER: EM & CS DATE: 6-6-67

MAC 231YL 17 MAY 64

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ST. LOUIS, MISSOURI

PAGE 58

REPORT TR 058-ADA.03

MODEL 195B

ANTENNA: NOSE STUB

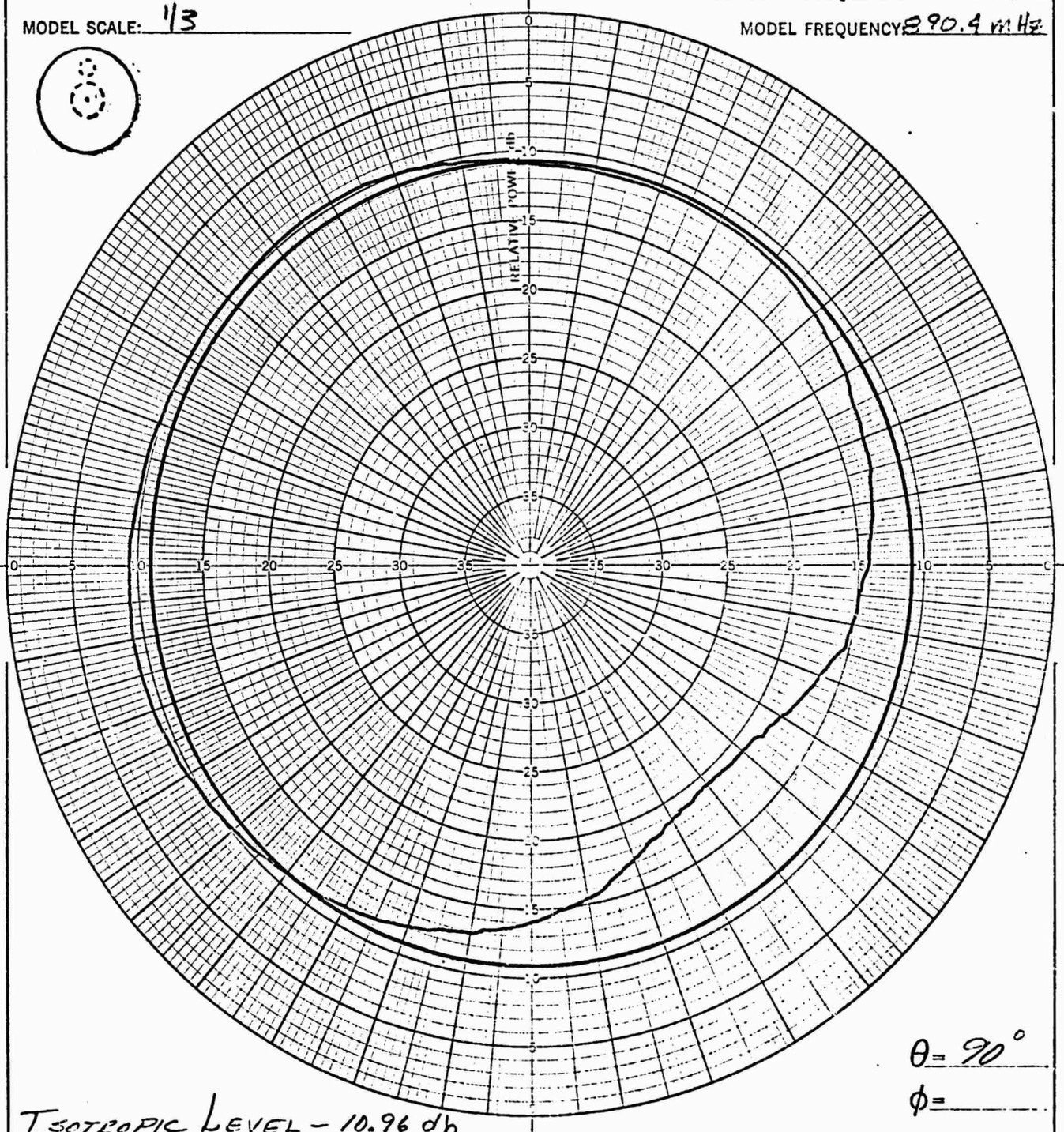
ANTENNA LOCATION: NOSE

MODEL SCALE: 1/3

VEHICLE: GEMINI B W/MOL

FULL SCALE FREQUENCY: 296.8 m Hz

MODEL FREQUENCY: 890.4 m Hz



ISOTROPIC LEVEL - 10.96 db

θ = 90°

φ =

CONFIGURATION: II

WITH WING FAIRINGS

REMARKS: CALIBRATION -2 db LINE

INTEGRATOR COUNT: 1511

POLARIZATION: Eφ ☐ Eθ ☐ OTHER: LHC

PLOTTED IN: RELATIVE POWER db

TRANSMISSION DISTANCE: 500 ft

OBSERVER: EM&CS DATE: 6-6-67

MAC 231YL (7 MAY 64)

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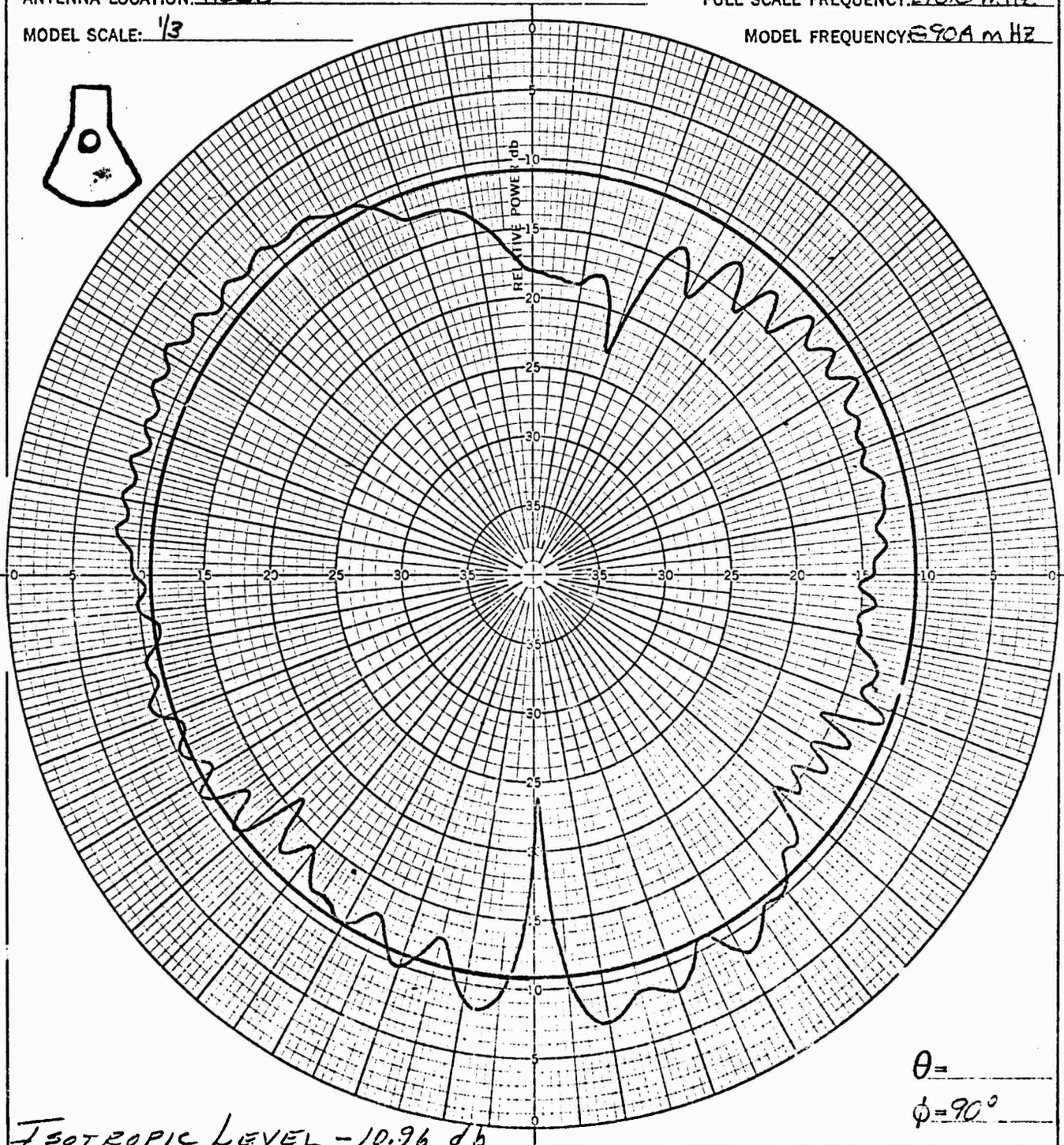
ST. LOUIS, MISSOURI

PAGE 59
REPORT TR 058-ADA.03
MODEL 195B

ANTENNA: NOSE STUB
ANTENNA LOCATION: NOSE
MODEL SCALE: 1/3

VEHICLE: GEMINI B W/MOL
FULL SCALE FREQUENCY: 296.8 mHz
MODEL FREQUENCY: 890A mHz



θ=

φ=90°

ISOTROPIC LEVEL -10.96 db

CONFIGURATION: II
VHF VCKF W/NOSE FAIRING

REMARKS: CALIBRATION -3db LINE

INTEGRATOR COUNT:
POLARIZATION: Eφ ☐ Eθ ☐ OTHER: LHC
PLOTTED IN: RELATIVE POWER db
TRANSMISSION DISTANCE: 500 FT
OBSERVER: EM & CS DATE: 6-6-67

MAC 231YL 17 MAY 64

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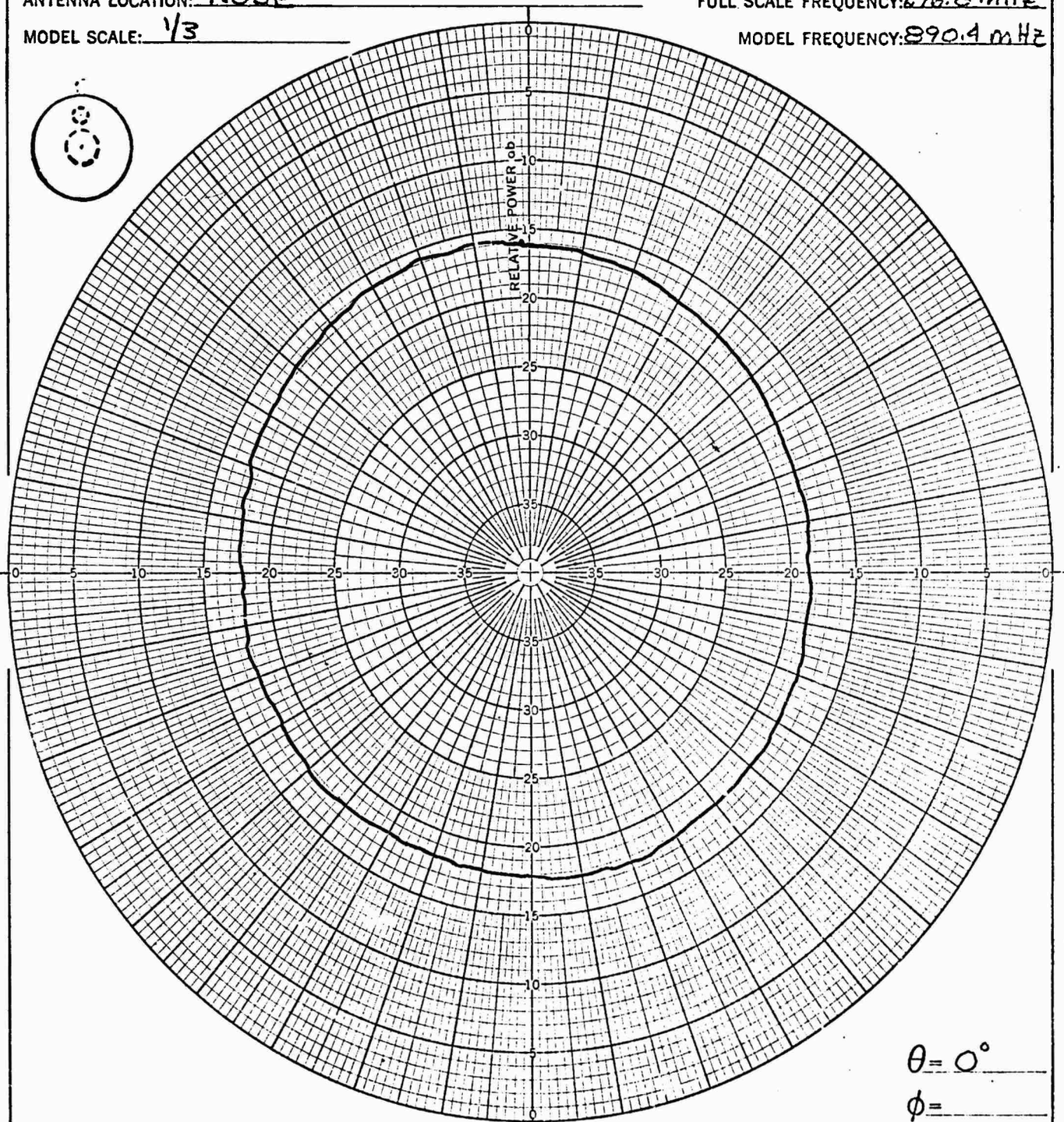
MCDONNELL
ST. LOUIS, MISSOURI

PAGE 60
REPORT TR 058-ADA.03
MODEL 195B

ANTENNA: NOSE STUB
ANTENNA LOCATION: NOSE
MODEL SCALE: 1/3

VEHICLE: GEMINI B W/MOL
FULL SCALE FREQUENCY: 296.8 mHz
MODEL FREQUENCY: 890.4 mHz



θ = 0°
ϕ =

CONFIGURATION: II

REMARKS: CALIBRATION -3db LINE

INTEGRATOR COUNT: 0.388
POLARIZATION: Eϕ ☐ Eθ ☐ OTHER: LHC
PLOTTED IN: RELATIVE POWER db
TRANSMISSION DISTANCE: 500 ft
OBSERVER: EM&CS DATE: 6-6-67

MAC 231YL (7 MAY 64)

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DATE

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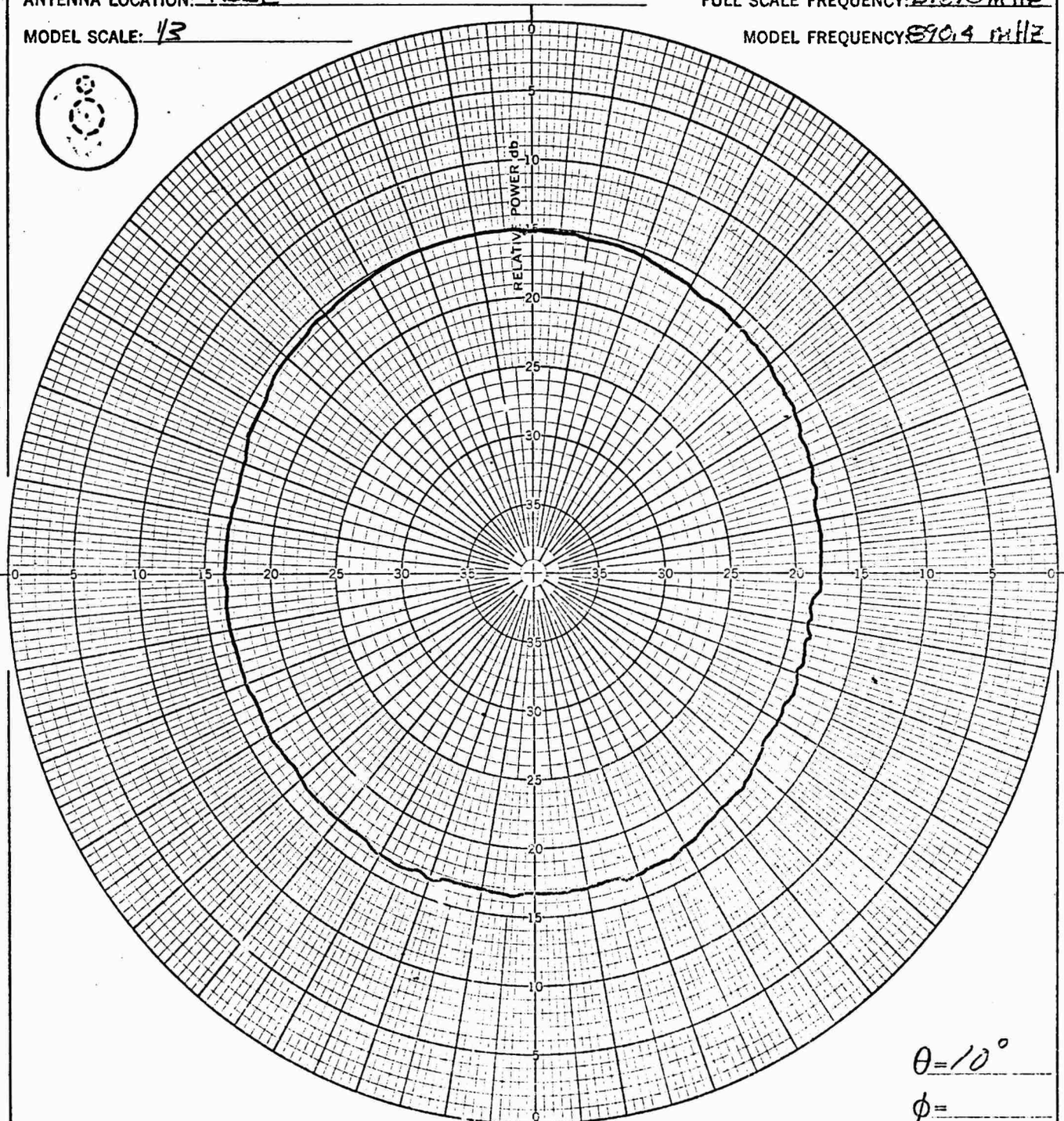
MCDONNELL
ST. LOUIS, MISSOURI

PAGE 61
REPORT TR 058-ADA.03
MODEL 195B

ANTENNA: NOSE STUB
ANTENNA LOCATION: NOSE
MODEL SCALE: 1/3

VEHICLE: GEMINI B W/MOL
FULL SCALE FREQUENCY: 296.8 mHz
MODEL FREQUENCY: 890.4 mHz



θ=10°
φ=

CONFIGURATION: II

REMARKS: CALIBRATION -3db LINE

INTEGRATOR COUNT: 0477
POLARIZATION: Eφ ☐ Eθ ☐ OTHER: LHC
PLOTTED IN: RELATIVE POWER db
TRANSMISSION DISTANCE: 500 ft
OBSERVER: EM&CS DATE: 6-6-67

MAC 231YL (7 MAY 64)

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MCDONNELL
ST. LOUIS, MISSOURI

PAGE 62

REPORT TR 058-ADA,03

MODEL 195B

ANTENNA: NOSE STUB

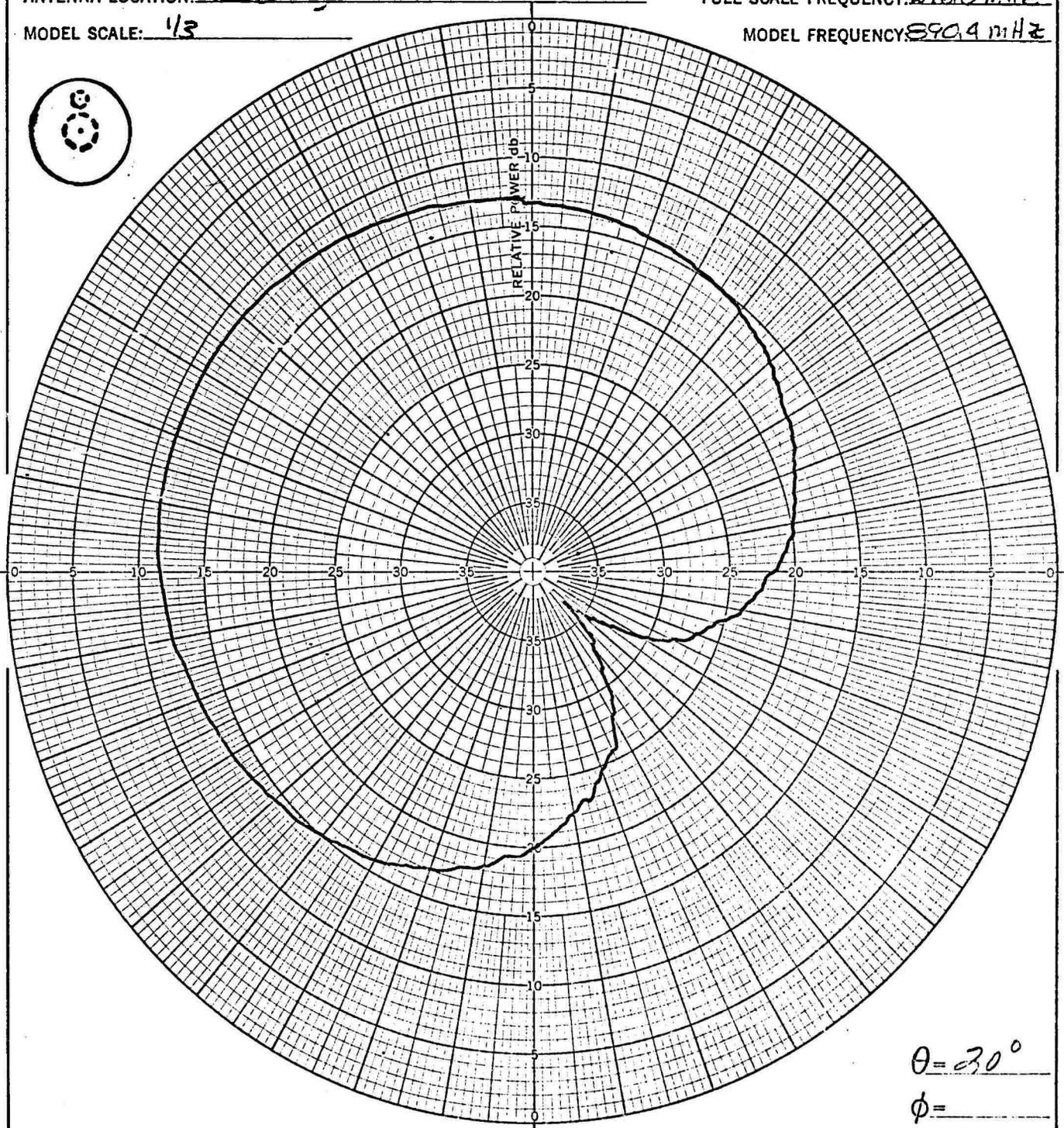
ANTENNA LOCATION: NOSE

MODEL SCALE: 1/3

VEHICLE: GEMINI B W/MOL

FULL SCALE FREQUENCY: 296.8 mHz

MODEL FREQUENCY: 890.4 mHz



θ = 30°

ϕ = _____

CONFIGURATION: II

INTEGRATOR COUNT: 0712

POLARIZATION: Eϕ ☐ Eθ ☐ OTHER: LHC

PLOTTED IN: RELATIVE POWER db

TRANSMISSION DISTANCE: 500 ft

REMARKS: CALIBRATION -3 db LINE

OBSERVER: EM & CS DATE: 5-6-67

MAC 231YL (7 MAY 64)

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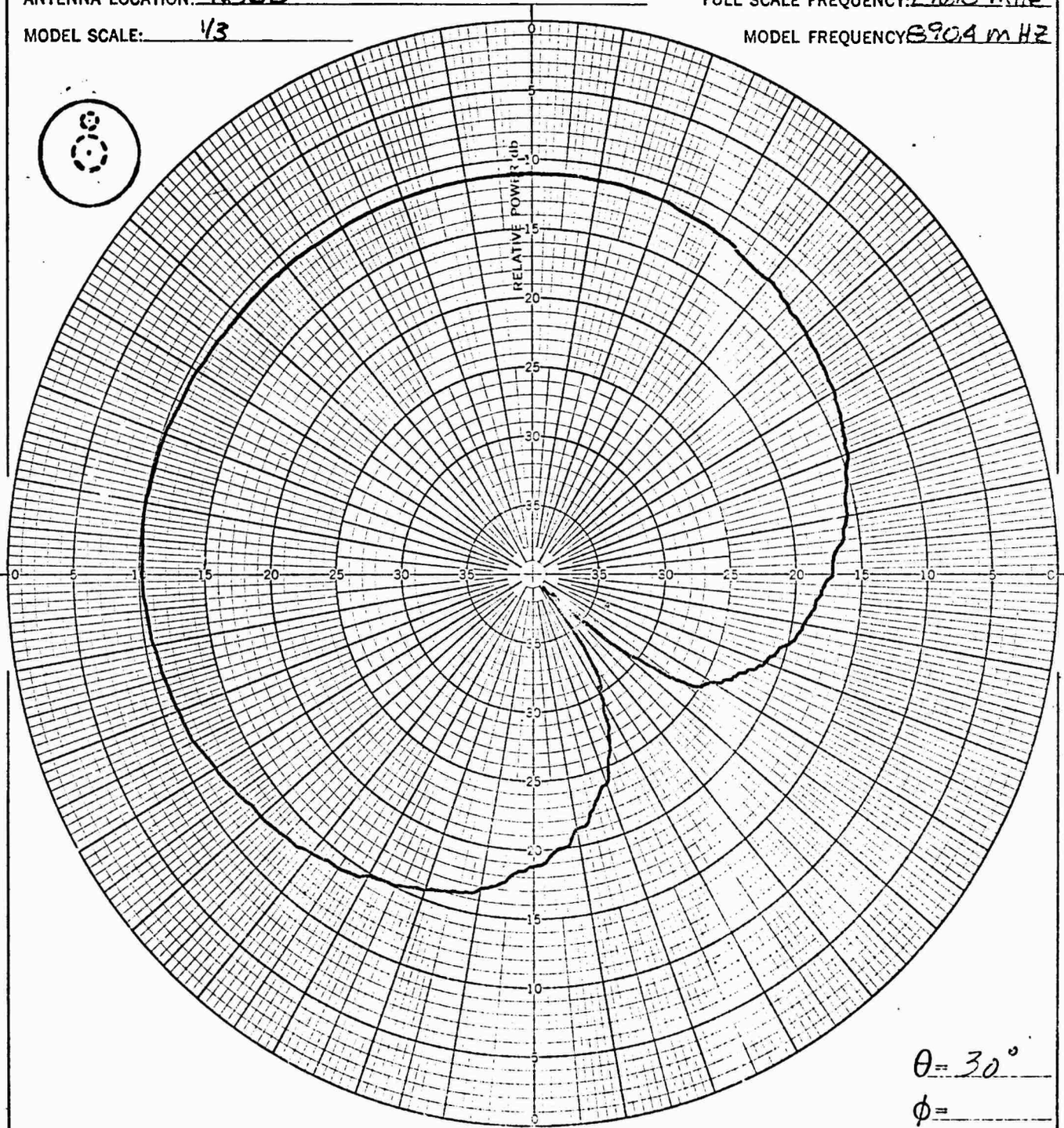
MCDONNELL
ST. LOUIS, MISSOURI

PAGE 63
REPORT TR 058-ADA.03
MODEL 195B

ANTENNA: NOSE STUB
ANTENNA LOCATION: NOSE
MODEL SCALE: 1/3

VEHICLE: GEMINI B W/MOL
FULL SCALE FREQUENCY: 296.8 mHz
MODEL FREQUENCY 89.04 mHz



CONFIGURATION: II

REMARKS: CALIBRATION -3db LINE

INTEGRATOR COUNT: 1066
POLARIZATION: Eφ ☐ Eθ ☐ OTHER: LHC
PLOTTED IN: RELATIVE POWER db
TRANSMISSION DISTANCE: 500 ft
OBSERVER: EM & CS DATE: 6-6-67

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MCDONNELL
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PAGE 64

REPORT TR 058-ADA.03

MODEL 195B

ANTENNA: NOSE STUB

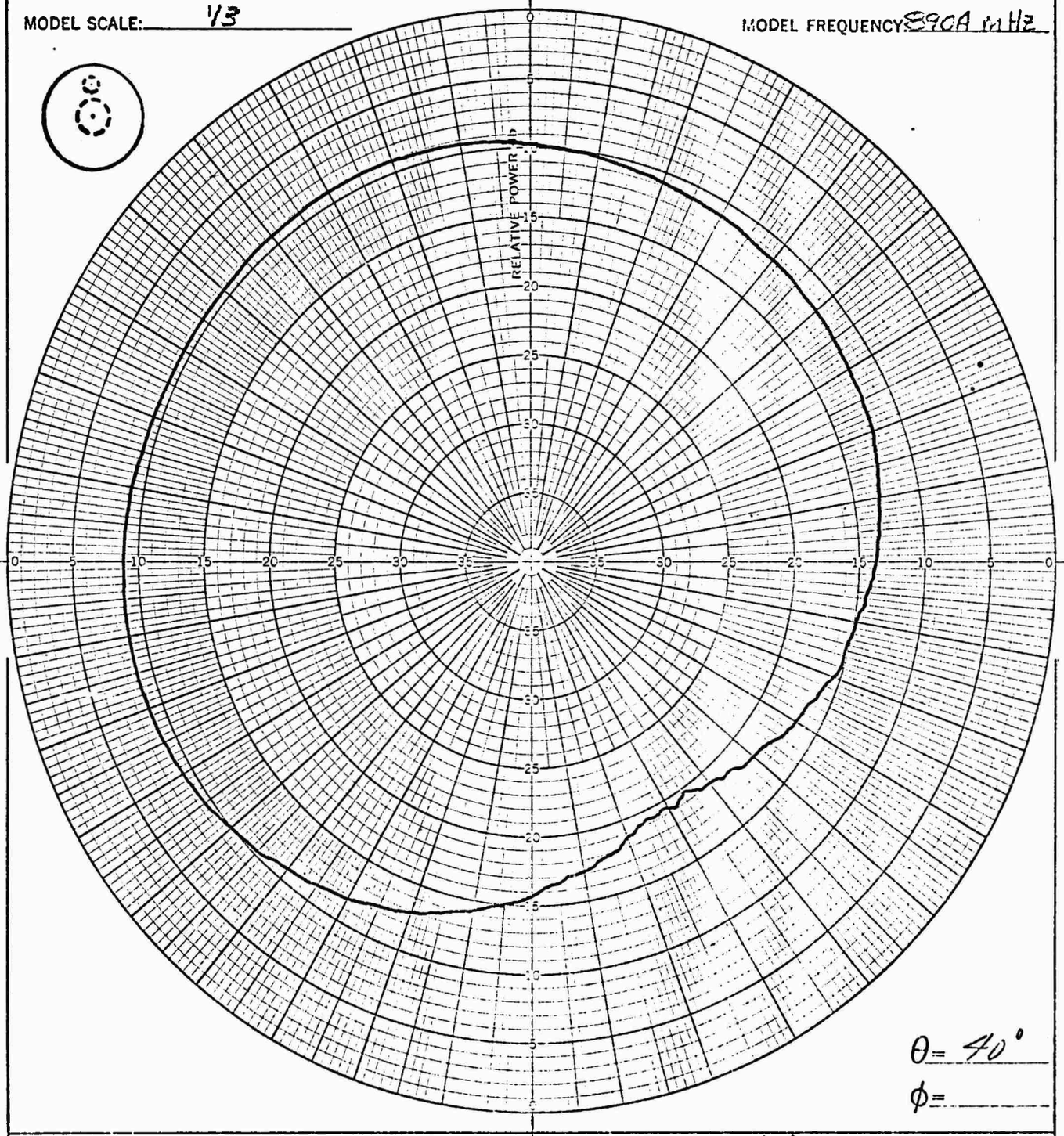
ANTENNA LOCATION: NOSE

MODEL SCALE: 1/3

VEHICLE: GEMINI B W/NA

FULL SCALE FREQUENCY: 296.8 mHz

MODEL FREQUENCY: 890A mHz



θ = 40°

ϕ =

CONFIGURATION: II

INTEGRATOR COUNT: 1641

POLARIZATION: Eϕ ☐ Eθ ☐ OTHER: LHC

PLOTTED IN: RELATIVE POWER db

REMARKS: CALIBRATION -3 db LINE

TRANSMISSION DISTANCE: 500 ft

OBSERVER: EMES DATE: 6-6-67

MAC 231YL 17 MAY 64I

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MCDONNELL
ST. LOUIS, MISSOURI

PAGE 65

REPORT TR 058-ADA.03

MODEL 195B

ANTENNA: NOSE STUB

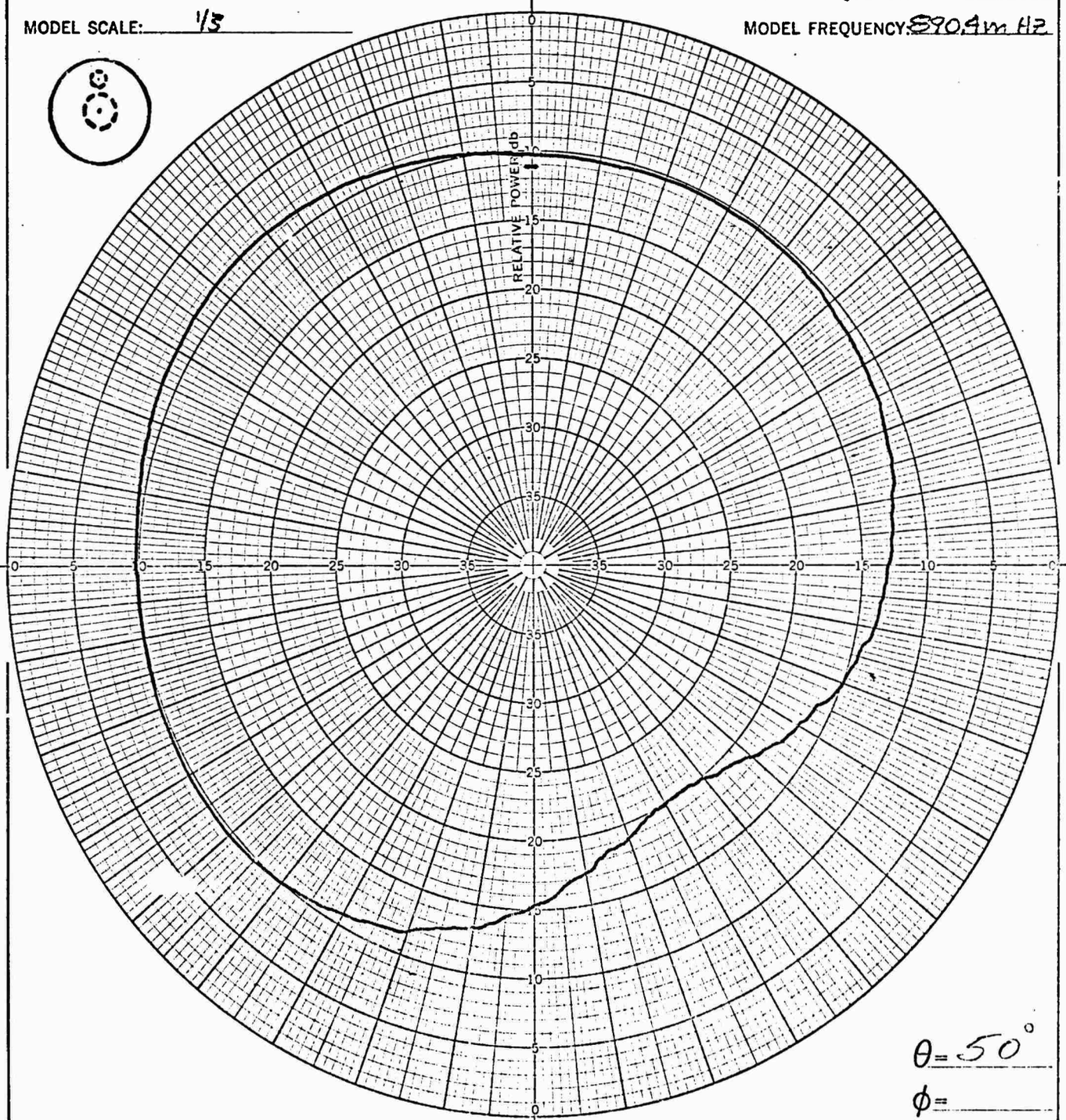
ANTENNA LOCATION: NOSE

MODEL SCALE: 1/3

VEHICLE GEMINI B W/NOL

FULL SCALE FREQUENCY: 296.8 mHz

MODEL FREQUENCY: 890.4 mHz



θ = 50°

ϕ = _____

CONFIGURATION: II

INTEGRATOR COUNT: 1702

POLARIZATION: Eϕ ☐ Eθ ☐ OTHER: LHC

PLOTTED IN: RELATIVE POWER db

TRANSMISSION DISTANCE: 500 ft

REMARKS: CALIBRATION - 3db LINE

OBSERVER: EM & CS DATE: 6-6-67

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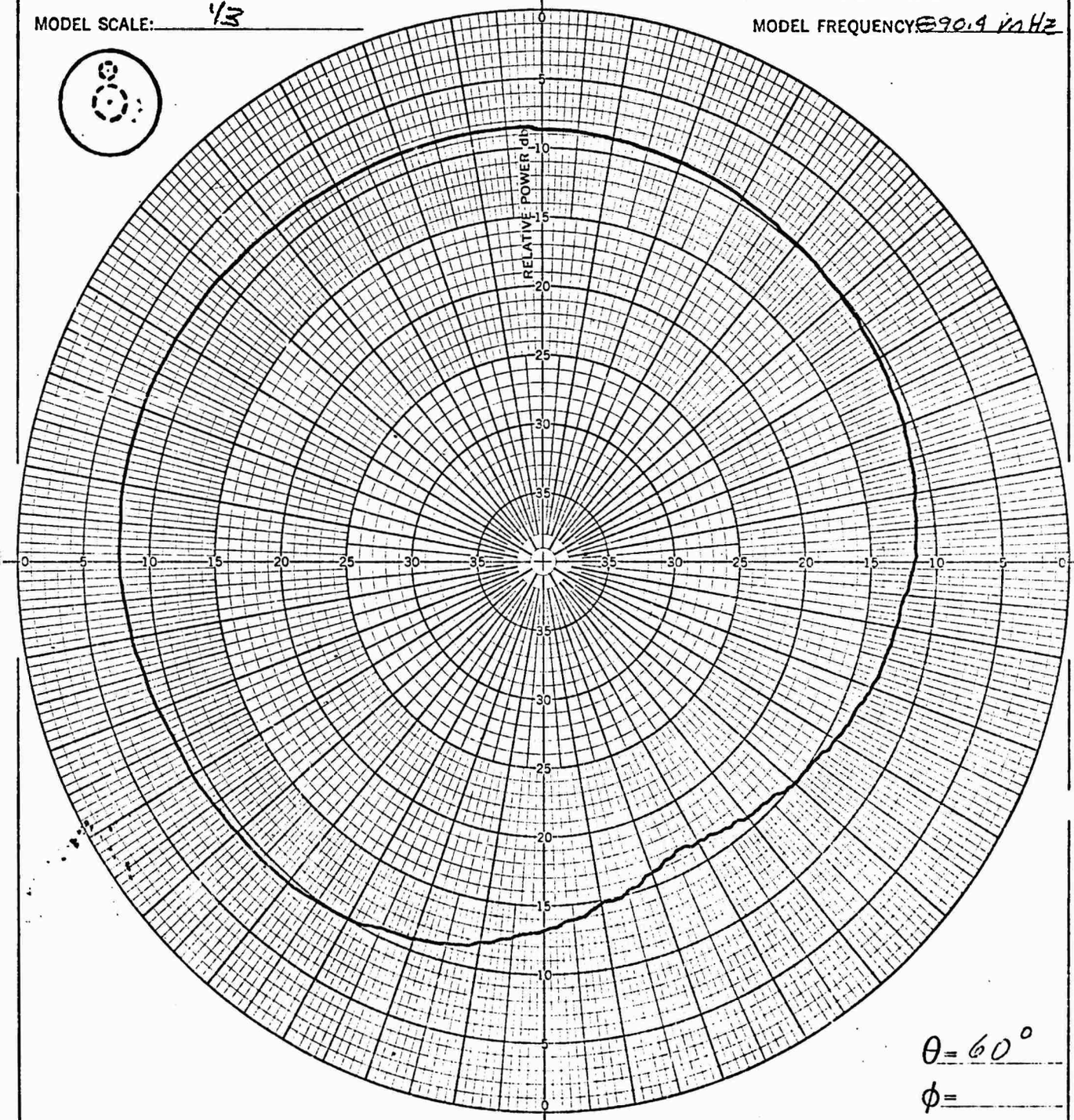
MCDONNELL
ST. LOUIS, MISSOURI

PAGE 66
REPORT TR 058-ADA.03
MODEL 195B

ANTENNA: NOSE STUB
ANTENNA LOCATION: NOSE
MODEL SCALE: 1/3

VEHICLE: GEMINI B W/MOL
FULL SCALE FREQUENCY: 296.8 mHz
MODEL FREQUENCY: 890.4 mHz



θ = 60°
ϕ =

CONFIGURATION: II

INTEGRATOR COUNT: 2199
POLARIZATION: Eϕ ☐ Eθ ☐ OTHER: LHC
PLOTTED IN: RELATIVE POWER db
TRANSMISSION DISTANCE: 500 ft
OBSERVER: EM & CS DATE: 6-6-67

REMARKS: CALIBRATION -3db LINE

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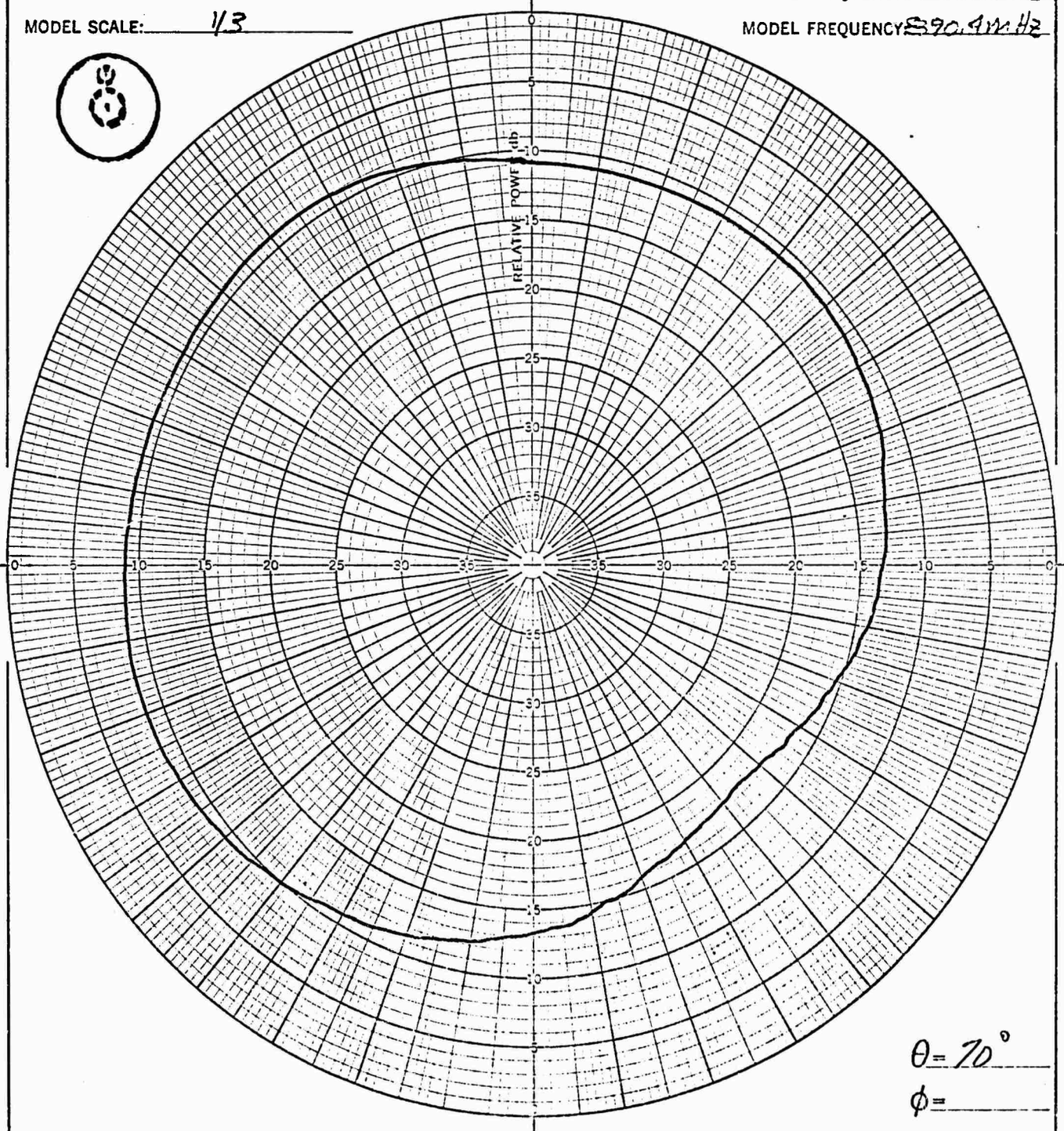
PAGE 67
REPORT TR 058-ADA.03
MODEL 195B

ANTENNA: NOSE STUB
ANTENNA LOCATION: NOSE
MODEL SCALE: 1/3

VEHICLE GEMINI B W/MOL
FULL SCALE FREQUENCY: 296.8mHz
MODEL FREQUENCY 890.4mHz



θ = 70°
ϕ =

CONFIGURATION: II

INTEGRATOR COUNT: 1753
POLARIZATION: Eϕ ☐ Eθ ☐ OTHER: L+R
PLOTTED IN: RELATIVE POWER db
TRANSMISSION DISTANCE: 500 ft.
OBSERVER: EM & CS DATE: 6-6-67

REMARKS: CALIBRATION -3db LINE

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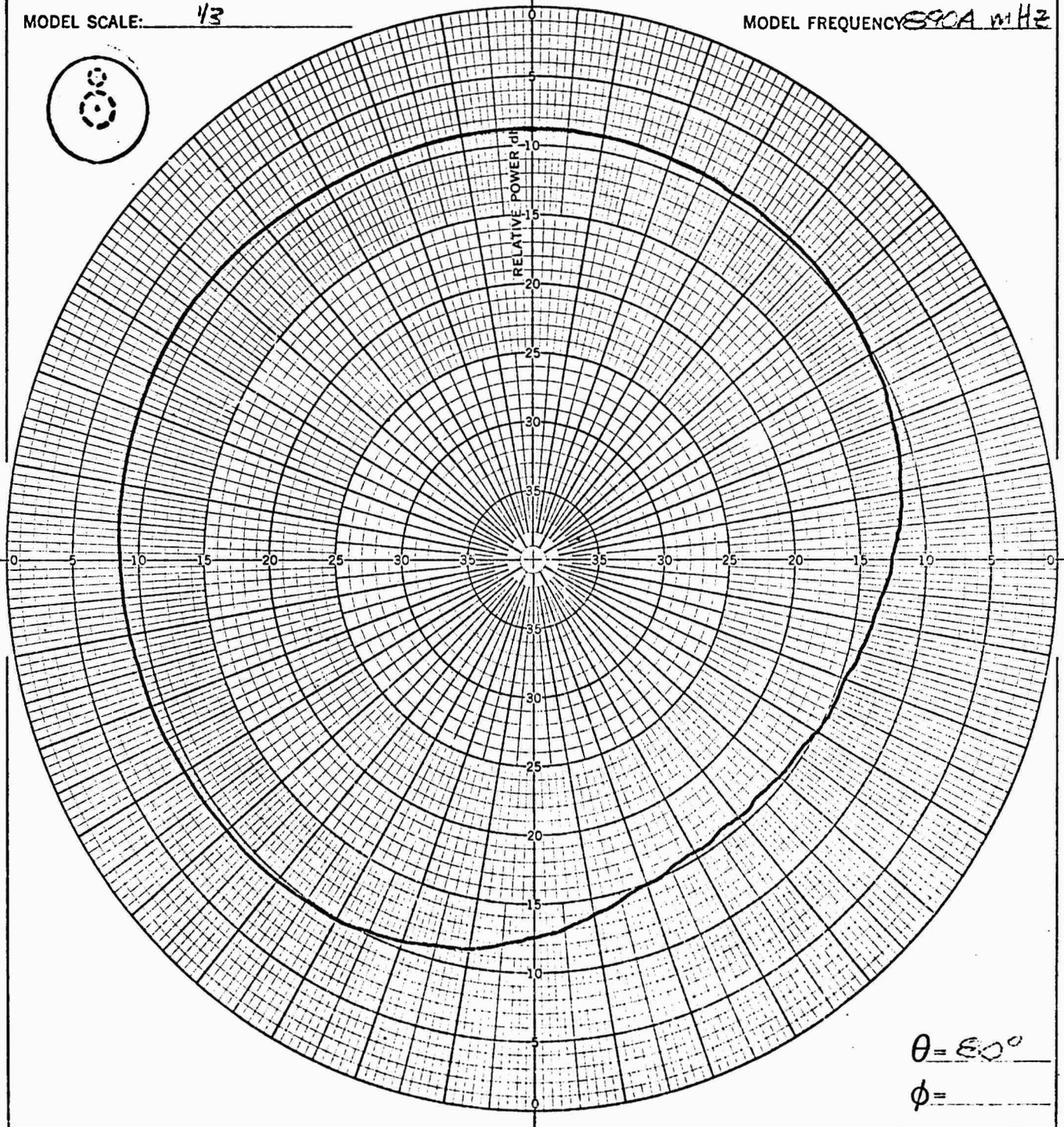
PAGE 68
REPORT TR 058-ADA.03
MODEL 195B

ANTENNA: NOSE STUB
ANTENNA LOCATION: NOSE
MODEL SCALE: 1/3

VEHICLE: GEMINI B W/MOL
FULL SCALE FREQUENCY: 296.8 mHz
MODEL FREQUENCY 890A mHz



CONFIGURATION: II

REMARKS: CALIBRATION -3db LINE

INTEGRATOR COUNT: 2118
POLARIZATION: Eφ ☐ Eθ ☐ OTHER: LHC
PLOTTED IN: RELATIVE POWER db
TRANSMISSION DISTANCE: 500 ft
OBSERVER: EMECS DATE: 6-6-67

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PAGE 69

REPORT TR 058-ADA.03

MODEL 195B

ANTENNA: NOSE STUB

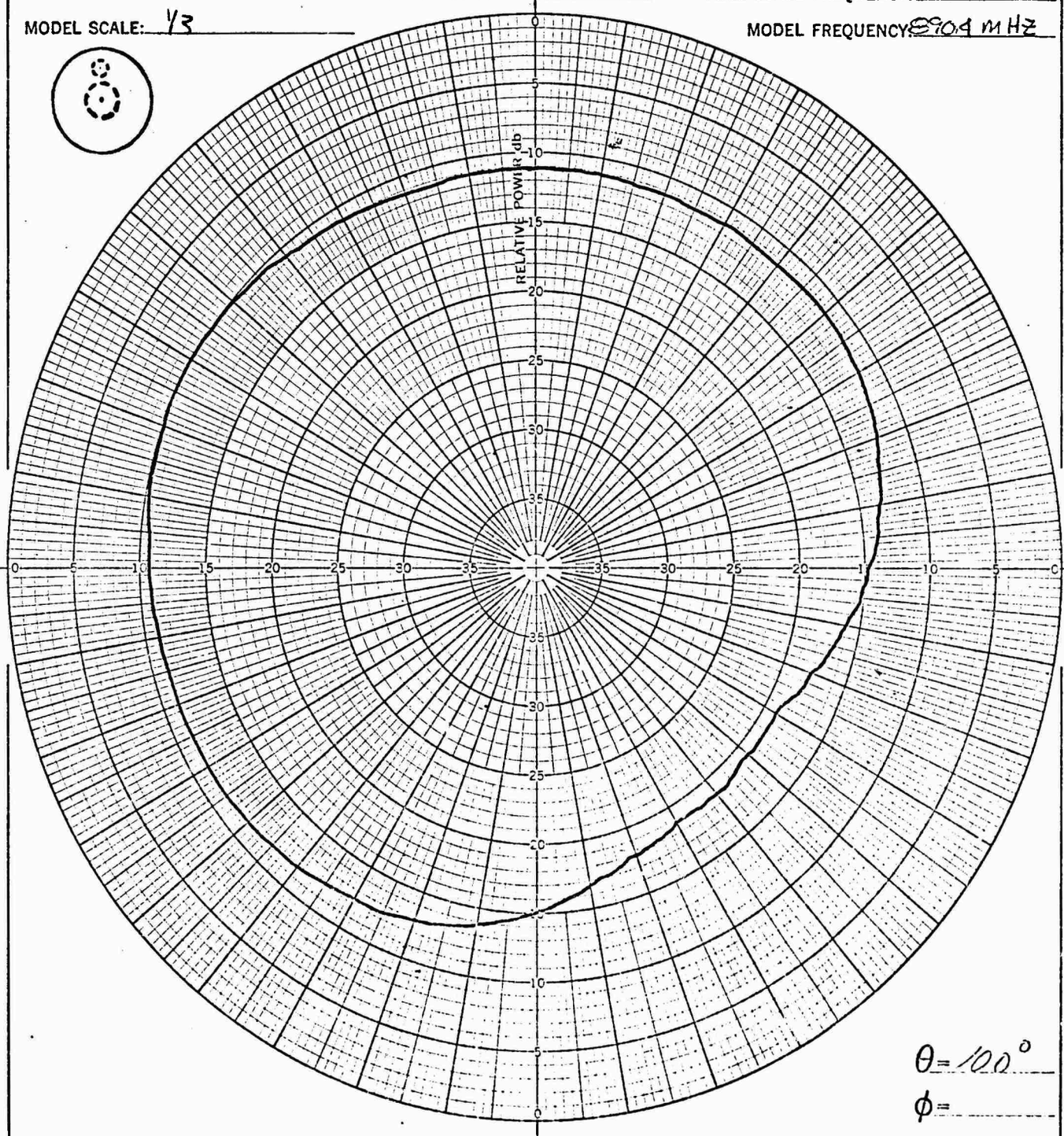
ANTENNA LOCATION: NOSE

MODEL SCALE: 1/3

VEHICLE GEMINI B W/MOL

FULL SCALE FREQUENCY: 296.8 MHz

MODEL FREQUENCY: 890.4 MHz



θ = 100°

ϕ =

CONFIGURATION: II

REMARKS: CALIBRATION -3db LINE

INTEGRATOR COUNT: 1381

POLARIZATION: Eϕ ☐ Eθ ☐ OTHER: LHC

PLOTTED IN: RELATIVE POWER db

TRANSMISSION DISTANCE: 500 ft

OBSERVER: EM & CS DATE: 6-6-67

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PAGE 70

REPORT TR 058-ADA.03

MODEL 195B

ANTENNA: NOSE STUB

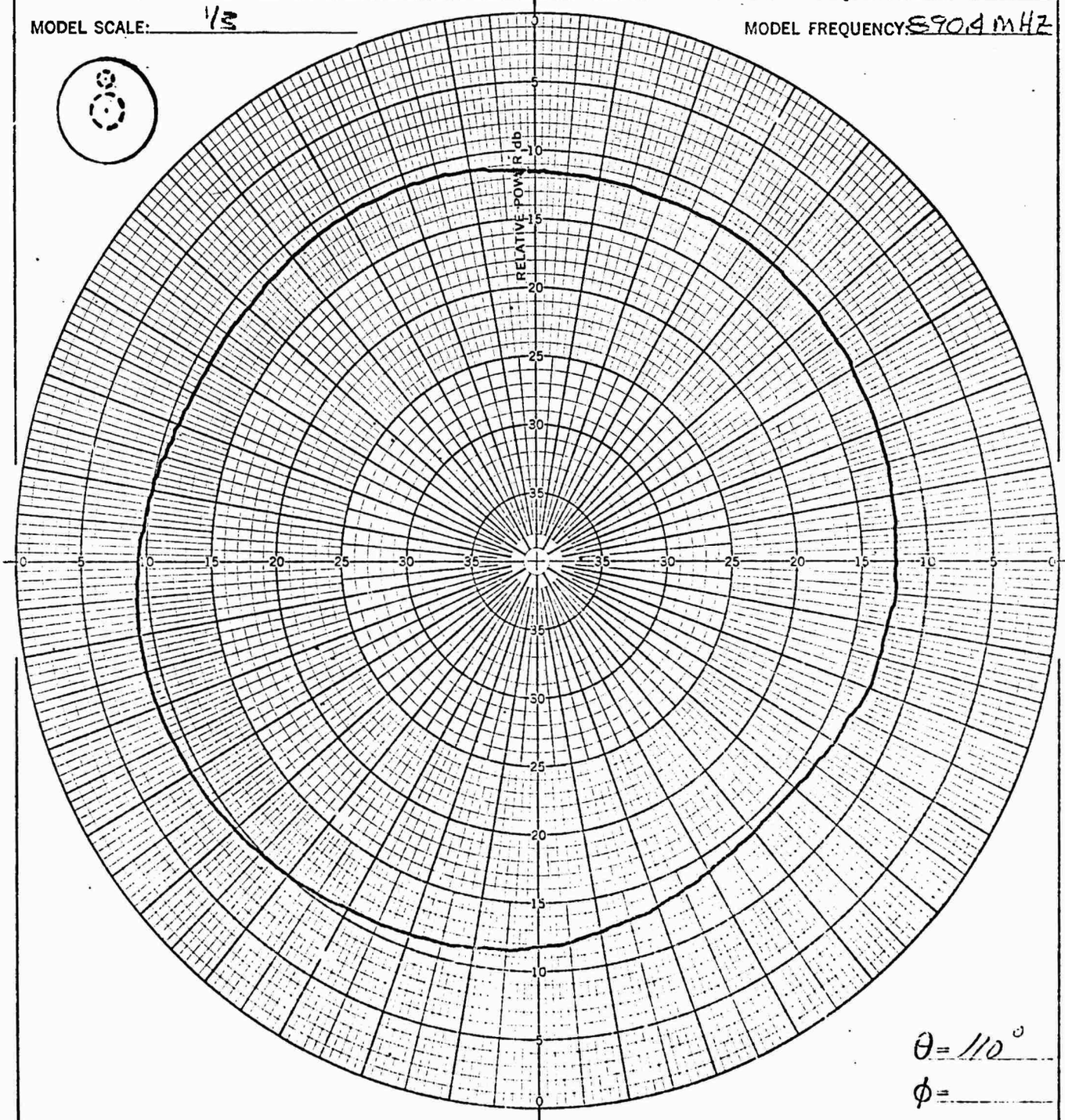
ANTENNA LOCATION: NOSE

MODEL SCALE: 1/3

VEHICLE: GEMINI B W/MOL

FULL SCALE FREQUENCY: 296.8 mHz

MODEL FREQUENCY: 890.4 mHz



θ = 110°

ϕ = _____

CONFIGURATION: II

INTEGRATOR COUNT: 1635

POLARIZATION: Eϕ [ ] Eθ [ ] OTHER: LHC

PLOTTED IN: RELATIVE POWER db

REMARKS: CALIBRATION -3db LINE

TRANSMISSION DISTANCE: 500 ft.

OBSERVER: EM & CS DATE: 6-6-61

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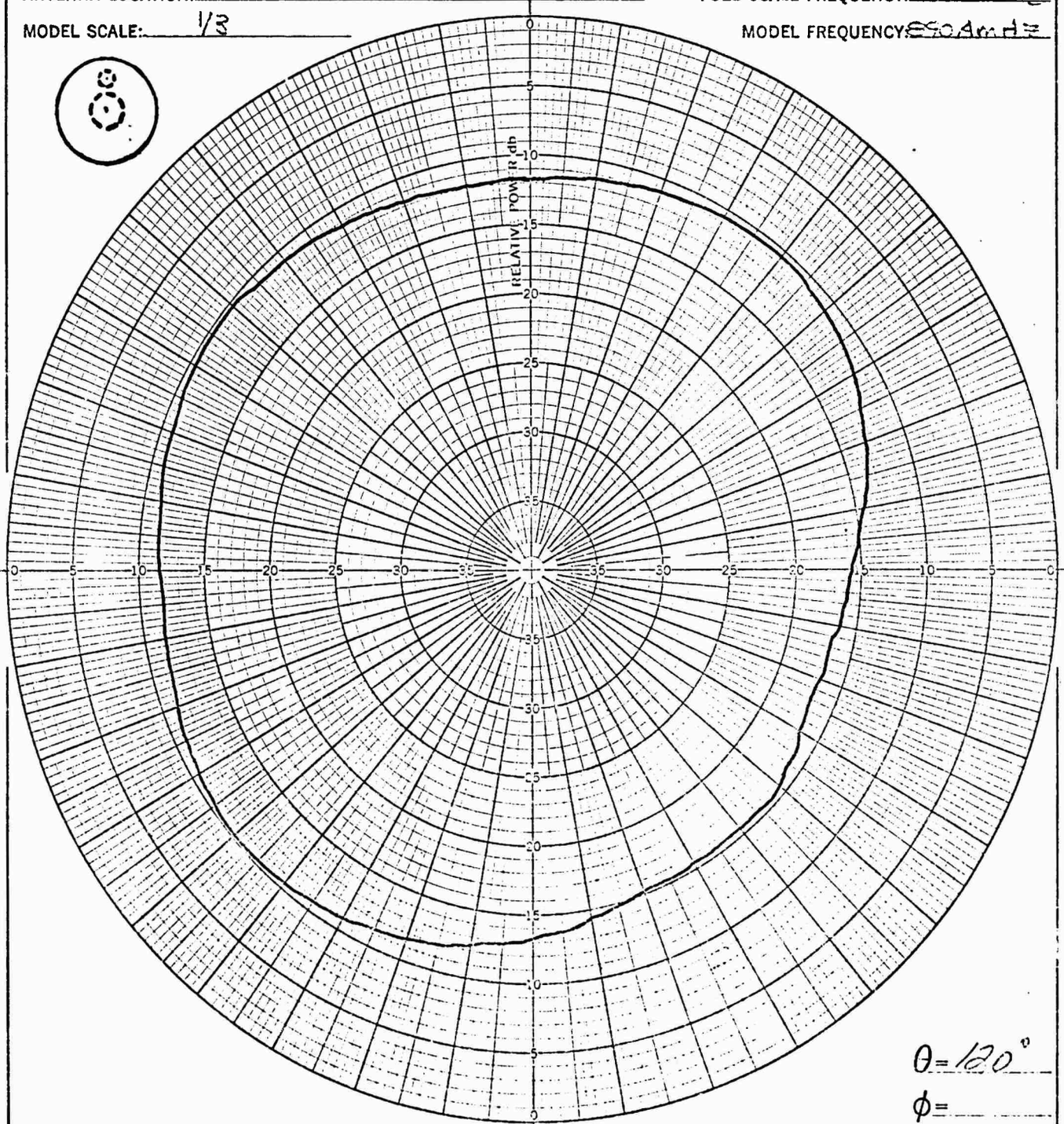
PAGE 71
REPORT TR 058-ADA,03
MODEL 195B

ANTENNA: NOSE STUB
ANTENNA LOCATION: NOSE
MODEL SCALE: 1/3

VEHICLE: GEMINI B W/MOL
FULL SCALE FREQUENCY: 296.8 MHz
MODEL FREQUENCY: 890.4 MHz



θ = 120°
φ =

CONFIGURATION: II

REMARKS: CALIBRATION = 2 db

INTEGRATOR COUNT: 1367
POLARIZATION: Eφ [ ] Eθ [ ] OTHER: LHC
PLOTTED IN: RELATIVE POWER db
TRANSMISSION DISTANCE: 52-0 ft
OBSERVER: EMCS DATE: 6-6-67

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PAGE 72

REPORT TR 058-ADA.03

MODEL 195B

ANTENNA: NOSE STUB

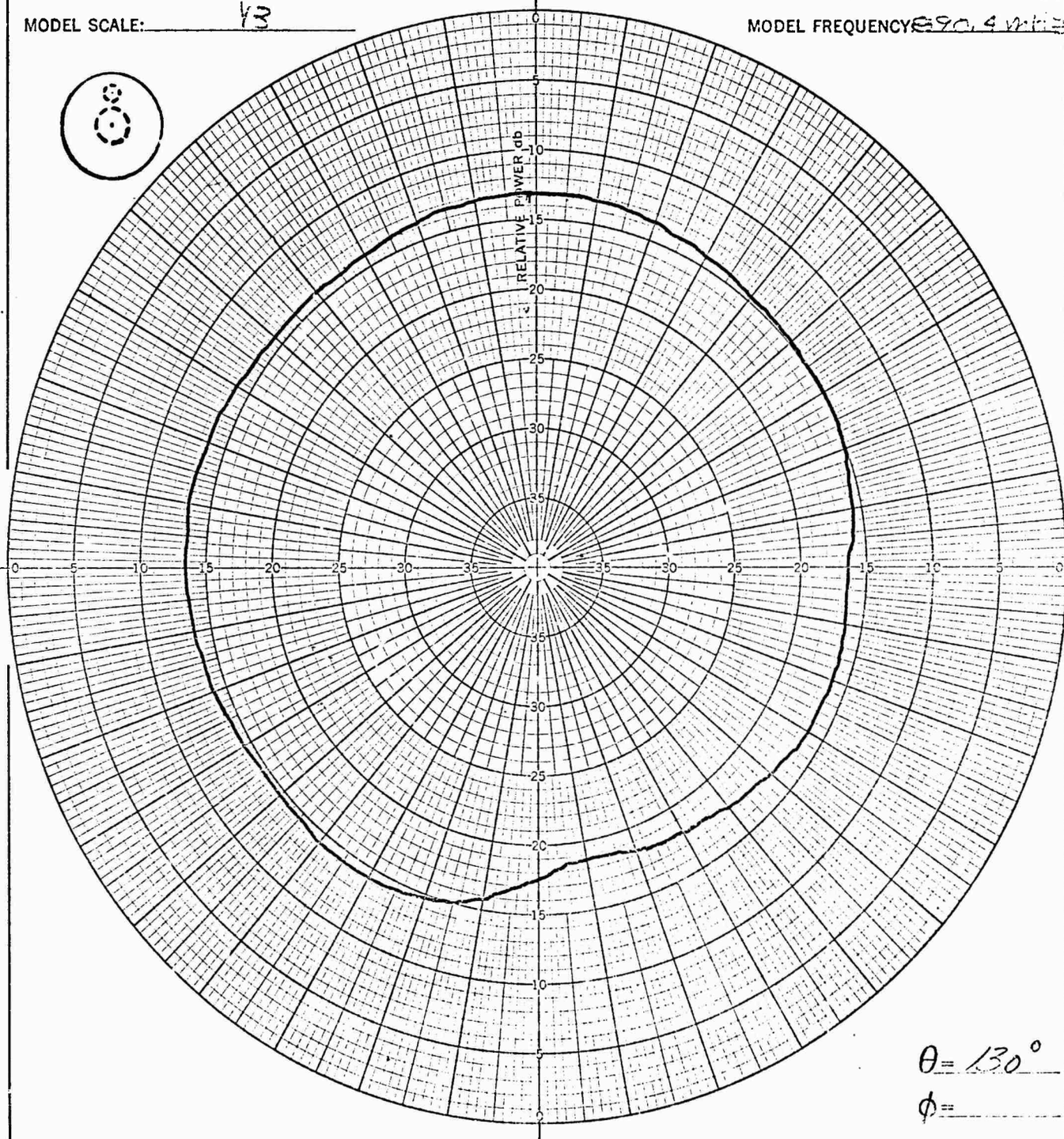
ANTENNA LOCATION: NOSE

MODEL SCALE: 1/3

VEHICLE: GEMINI B WIND

FULL SCALE FREQUENCY: 296.8 mc

MODEL FREQUENCY: 890.4 mc



$\theta = 130°$

$\phi =$

CONFIGURATION: II

REMARKS: CALIBRATION — ROLL LINE

INTEGRATOR COUNT: 0737

POLARIZATION: Eϕ ☐ Eθ ☐ OTHER: LHC

PLOTTED IN: RELATIVE POWER db

TRANSMISSION DISTANCE: 500 ft

OBSERVER: FM & CS DATE: 6-[illegible]-67

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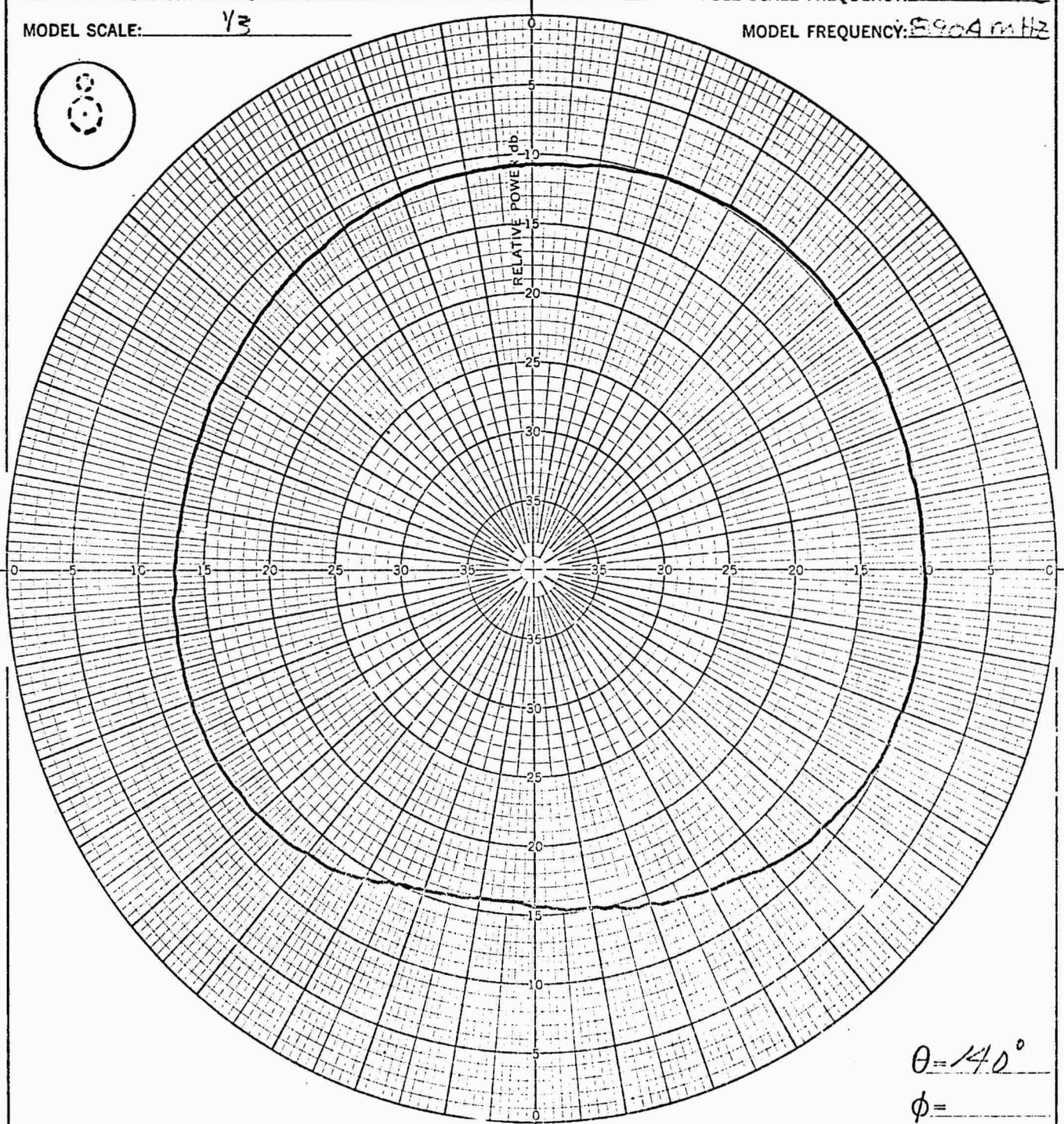
PAGE 73
REPORT TR 058-AD4.03
MODEL 195B

ANTENNA: NOSE STUB
ANTENNA LOCATION: NOSE
MODEL SCALE: 1/3

VEHICLE: GEMINI B W/MSL
FULL SCALE FREQUENCY: 296.8 mHz
MODEL FREQUENCY: 890.4 mHz



θ = 140°
ϕ =

CONFIGURATION: II

REMARKS: CALIBRATION -3db LINE

INTEGRATOR COUNT: 1512
POLARIZATION: Eϕ ☐ Eθ ☐ OTHER: LHC
PLOTTED IN: RELATIVE POWER db
TRANSMISSION DISTANCE: 500 ft.
OBSERVER: FMSCS DATE: [illegible]

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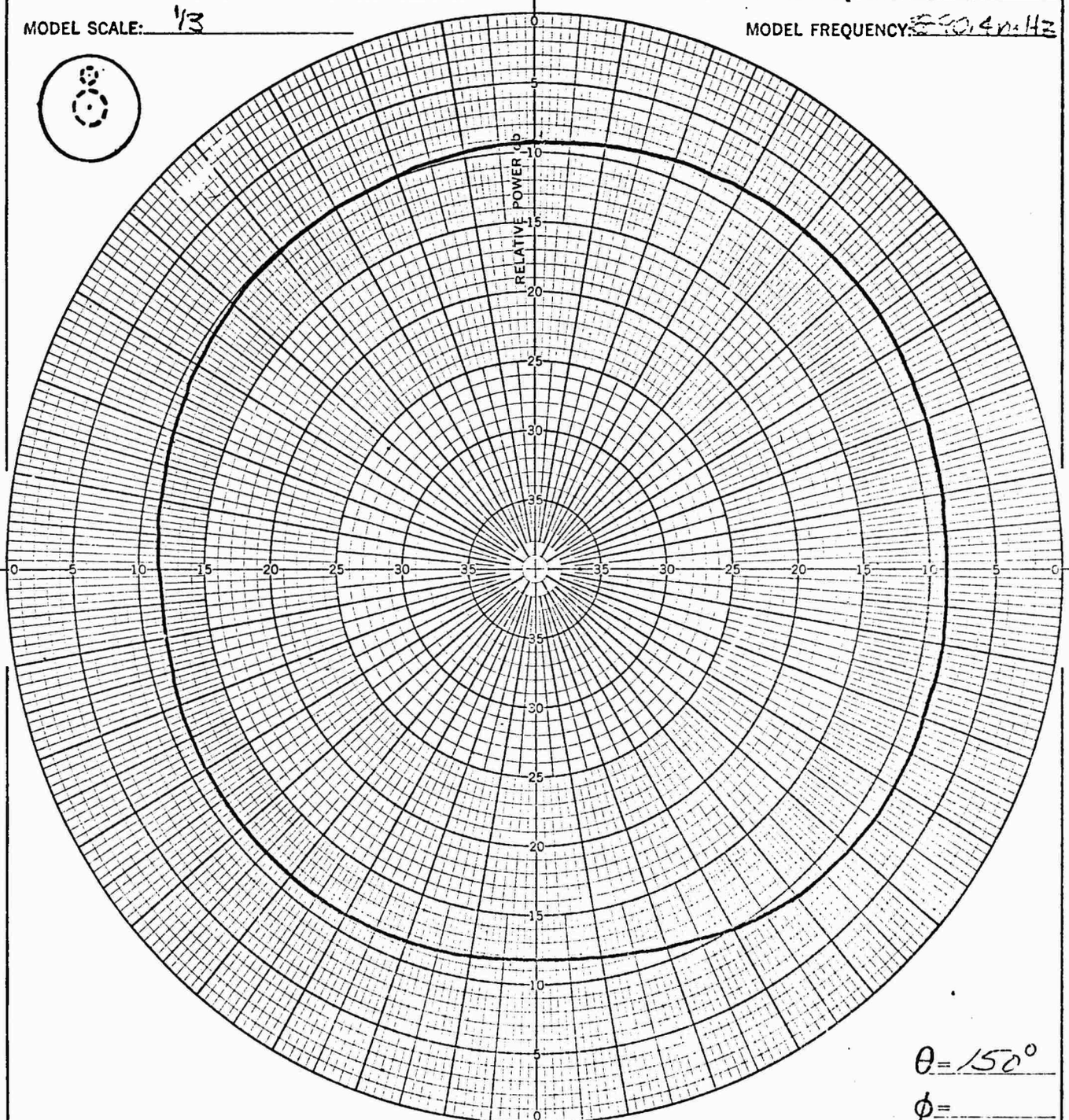
PAGE 74
REPORT TR 058-ADA.03
MODEL 195B

ANTENNA: NOSE STUB
ANTENNA LOCATION: NOSE
MODEL SCALE: 1/3

VEHICLE: GEMINI B W/MCL
FULL SCALE FREQUENCY: 296 MHz
MODEL FREQUENCY: 592.4 MHz



θ = 150°
ϕ =

CONFIGURATION: T

REMARKS: CALIBRATION - 3db LINE

INTEGRATOR COUNT: 2309
POLARIZATION: Eϕ ☐ Eθ ☐ OTHER: LHC
PLOTTED IN: RELATIVE POWER db
TRANSMISSION DISTANCE: 500 ft.
OBSERVER: EM&CS DATE: 6-6-67

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PAGE 75

REPORT TR 058-ADA.03

MODEL 195B

ANTENNA: NOSE STUB

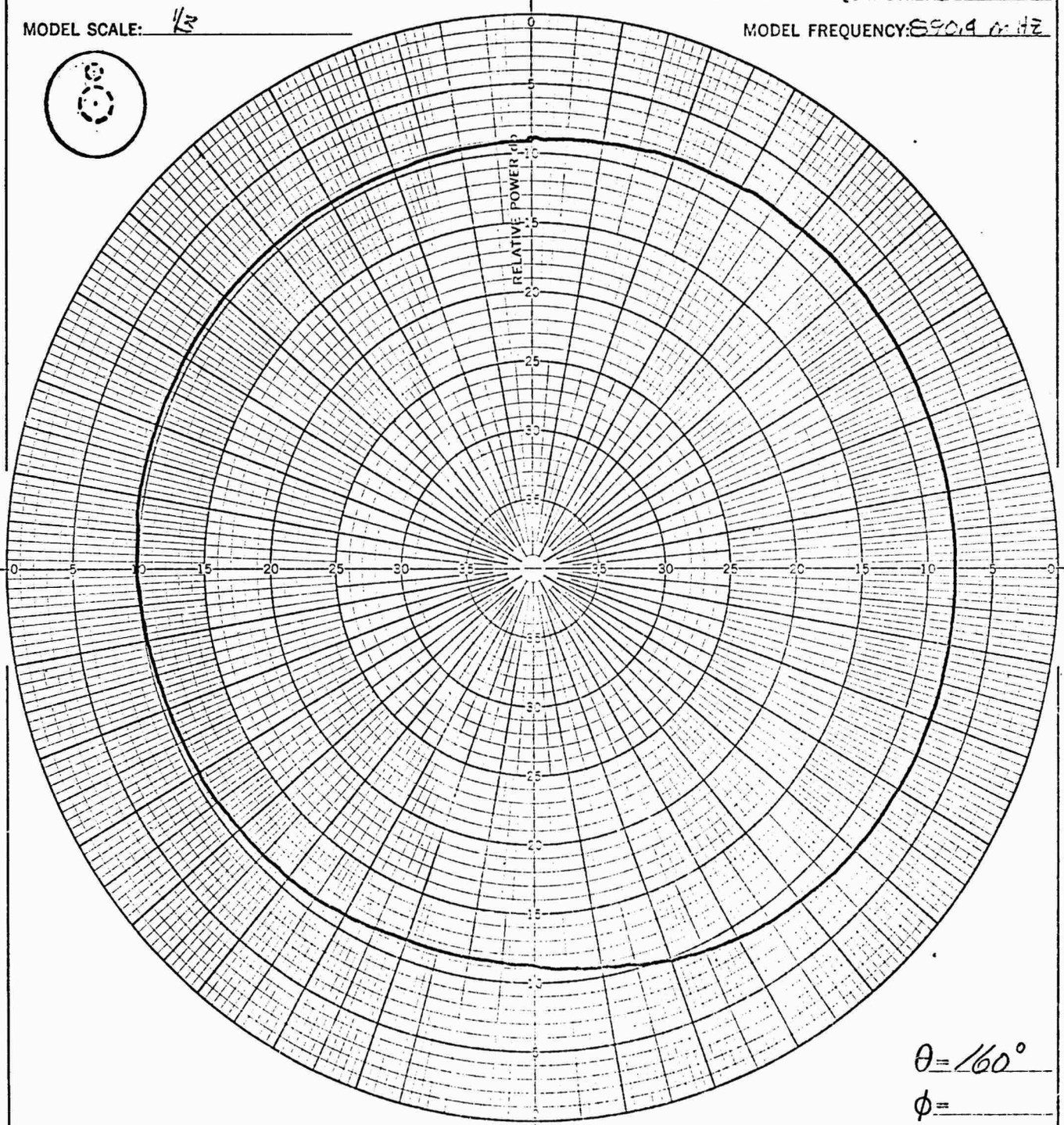
ANTENNA LOCATION: NOSE

MODEL SCALE: 1/2

VEHICLE: GEMINI F W/NOL

FULL SCALE FREQUENCY: 296 E mHz

MODEL FREQUENCY: 6904 A mHz



θ = 160°

ϕ =

CONFIGURATION: II

REMARKS: CALIBRATION - 3 dB LINE

INTEGRATOR COUNT: 2630

POLARIZATION: Eϕ ☐ Eθ ☐ OTHER: LHC

PLOTTED IN: RELATIVE POWER db

TRANSMISSION DISTANCE: 500 ft

OBSERVER: EMICS DATE: 6-6-67

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MCDONNELL
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PAGE 76

REPORT TR 058-ADA.03

MODEL 195B

ANTENNA: NOSE STUB

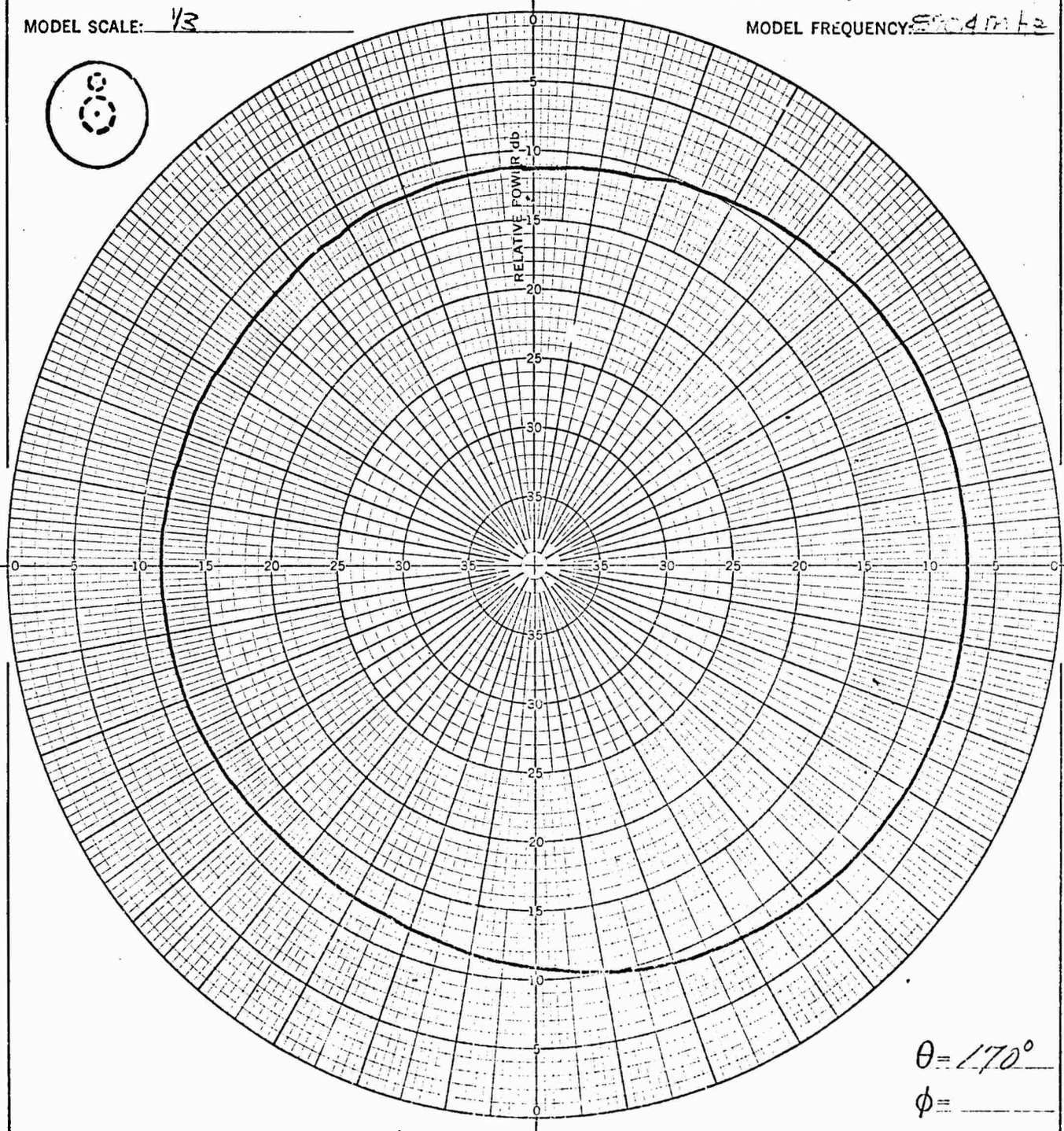
ANTENNA LOCATION: NOSE

MODEL SCALE: 1/3

VEHICLE GEMINI B W/MOL

FULL SCALE FREQUENCY: 296.8 mHz

MODEL FREQUENCY: 890.4 mHz



θ = 170°

φ = _____

CONFIGURATION: II

INTEGRATOR COUNT: 3284

POLARIZATION: Eφ ☐ Eθ ☐ OTHER: LHC

PLOTTED IN: RELATIVE POWER db

REMARKS: CALIBRATION -5db LINE

TRANSMISSION DISTANCE: 500 ft.

OBSERVER: FMC CS DATE: 6-8-67

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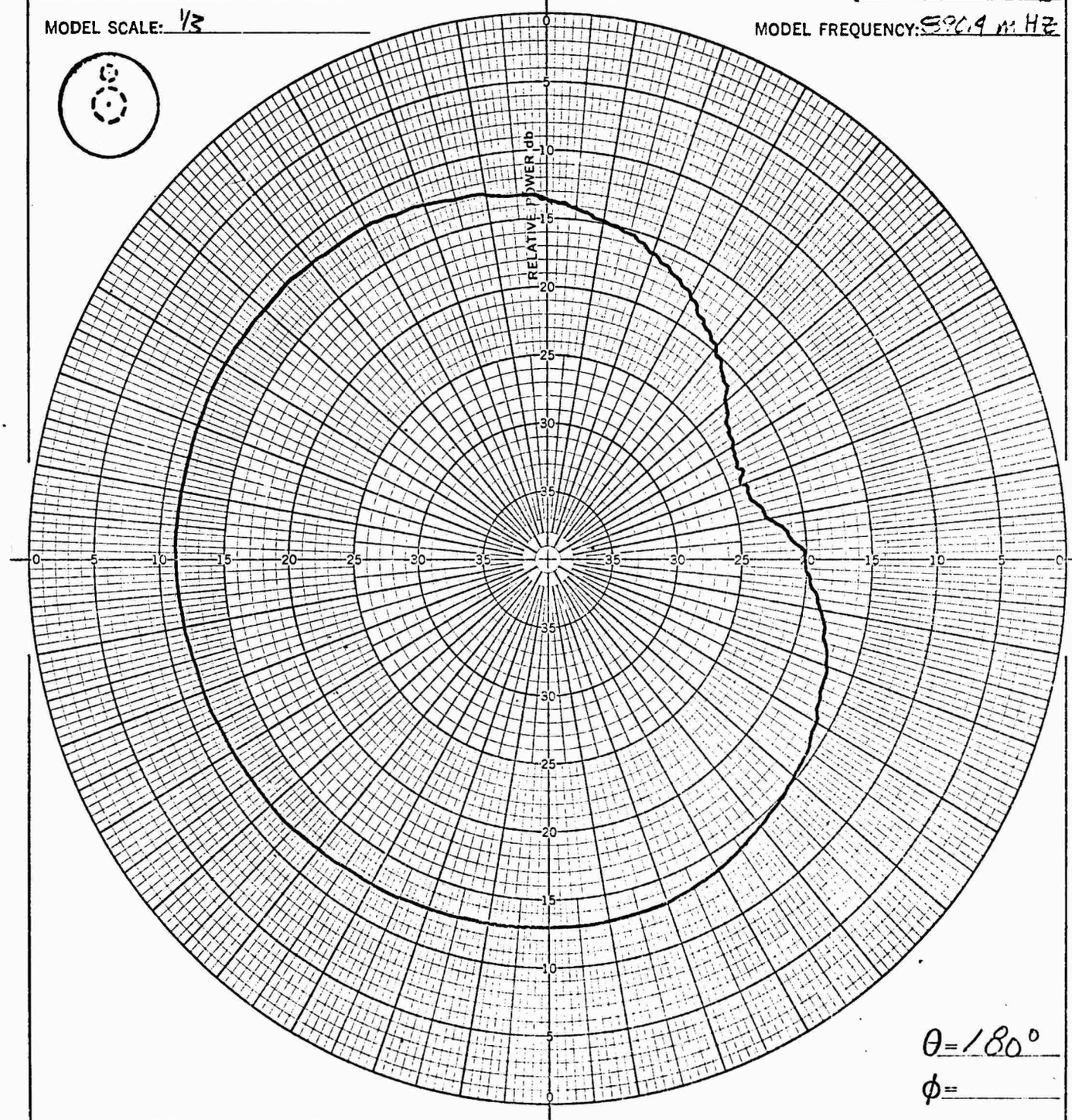
PAGE 77
REPORT TR 058-ADA.03
MODEL 195B

ANTENNA: NOSE STUB
ANTENNA LOCATION: NOSE
MODEL SCALE: 1/3

VEHICLE: GEMINI B W/MCL
FULL SCALE FREQUENCY: 296.8 m HZ
MODEL FREQUENCY: 890.4 m HZ



θ = 180°
ϕ =

CONFIGURATION: II

REMARKS: CALIBRATION -3 db LINE

INTEGRATOR COUNT: 0959
POLARIZATION: Eϕ ☐ Eθ ☐ OTHER: LHC
PLOTTED IN: RELATIVE POWER db
TRANSMISSION DISTANCE: 500 ft
OBSERVER: EM & CS DATE: 6-6-67

MAC 231YL (7 MAY 64)

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ISOTROPIC CALCULATION

I_2 = Count for calibration radius = 10,000

$K = \frac{2}{\pi} = 0.63662$ $KI_2 = 6366.2$

For Electronic Integrator and db Recording

$\frac{KI_2}{I_1}$ = Power Ratio 10 Log_{10} Power Ratio = Istropic db below calibration level

A = Integrator Count Recorder Chart Level for calibration [-3 db]

CONFIGURATION II

sin θ	θ	A Pol. LHC	A Pol.	A Pol. LHC	A Pol.	θ
0.17365	10°	0477		2284		170°
0.34202	20°	0712		2630		160°
0.50000	30°	1066		2309		150°
0.64279	40°	1641		1512		140°
0.76604	50°	1702		0727		130°
0.86603	60°	2199		1367		120°
0.93969	70°	1753		1635		110°
0.98481	80°	2118		1281		100°
1.00000	90°	1511				

$\sum_{180}^{0} (A_\theta \sin\theta + A_\phi \sin\theta)$ 12327.71 ÷ 18 = I_1 1,018.21

$\frac{6366.2}{I_1}$ = Power Ratio 6.25

Isotropic = 10 Log_{10} Power Ratio = 7.96 db Below calibration level

Isotropic Chart Level = -10.96 db

FREQ. 890.4 MHz W/ FAIRING

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PAGE 79

REPORT TR 058-ADA.03

MODEL 195B

ANTENNA: NOSE STUB

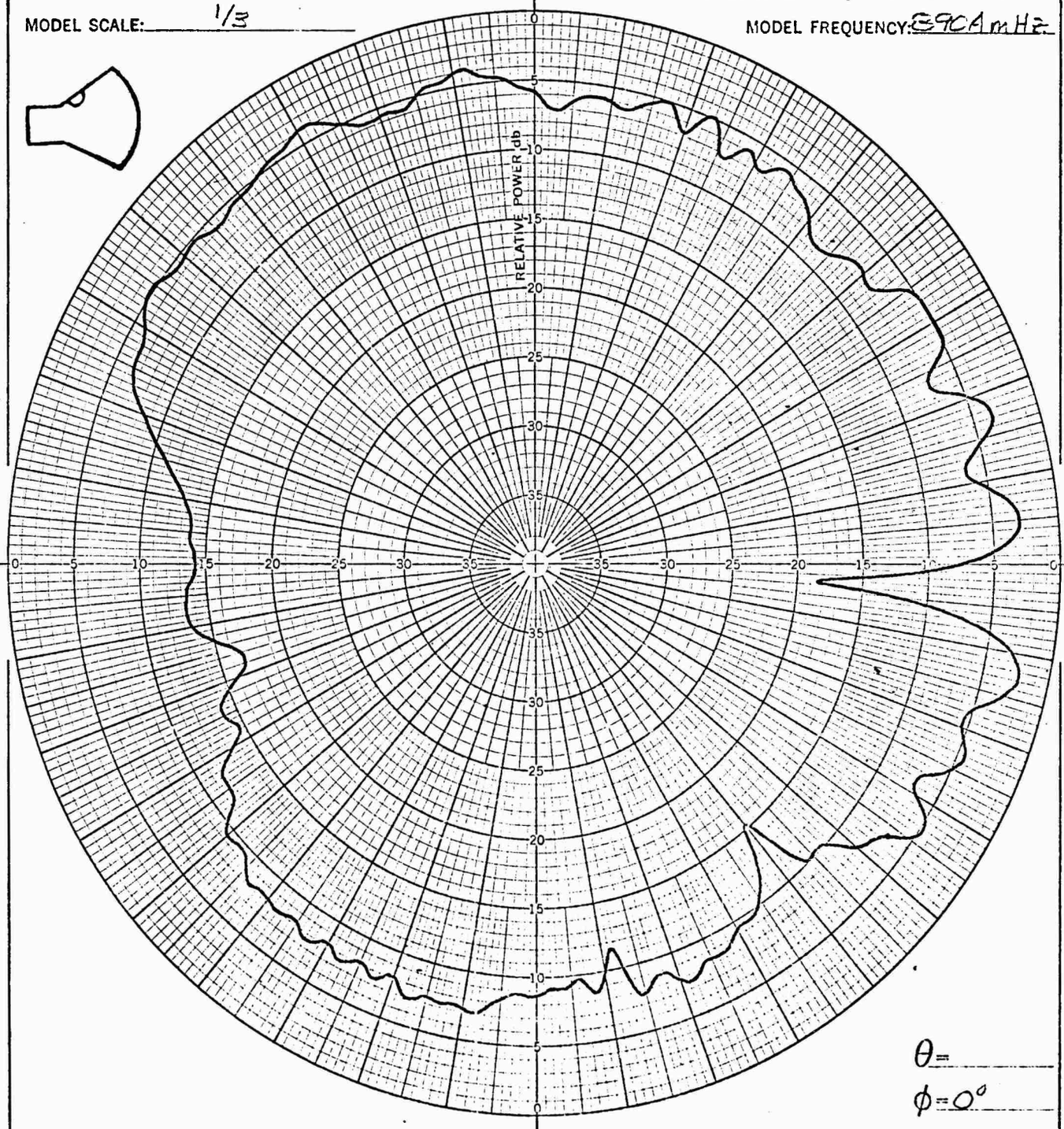
ANTENNA LOCATION: NOSE

MODEL SCALE: 1/3

VEHICLE: GEMINI B W/MOL

FULL SCALE FREQUENCY: 296.8 mHz

MODEL FREQUENCY: 89.0 mHz



θ =

φ = 0°

CONFIGURATION: VII

Antenna Farm

REMARKS: 0° = RANGE HORIZONTAL

INTEGRATOR COUNT:

POLARIZATION: Eφ [ ] Eθ [✓] OTHER:

PLOTTED IN: RELATIVE POWER db

TRANSMISSION DISTANCE: 500 ft.

OBSERVER: EM & CS DATE: 12-6-67

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PAGE 80

REPORT TR 058-ADA.03

MODEL 195B

ANTENNA: NOSE STUB

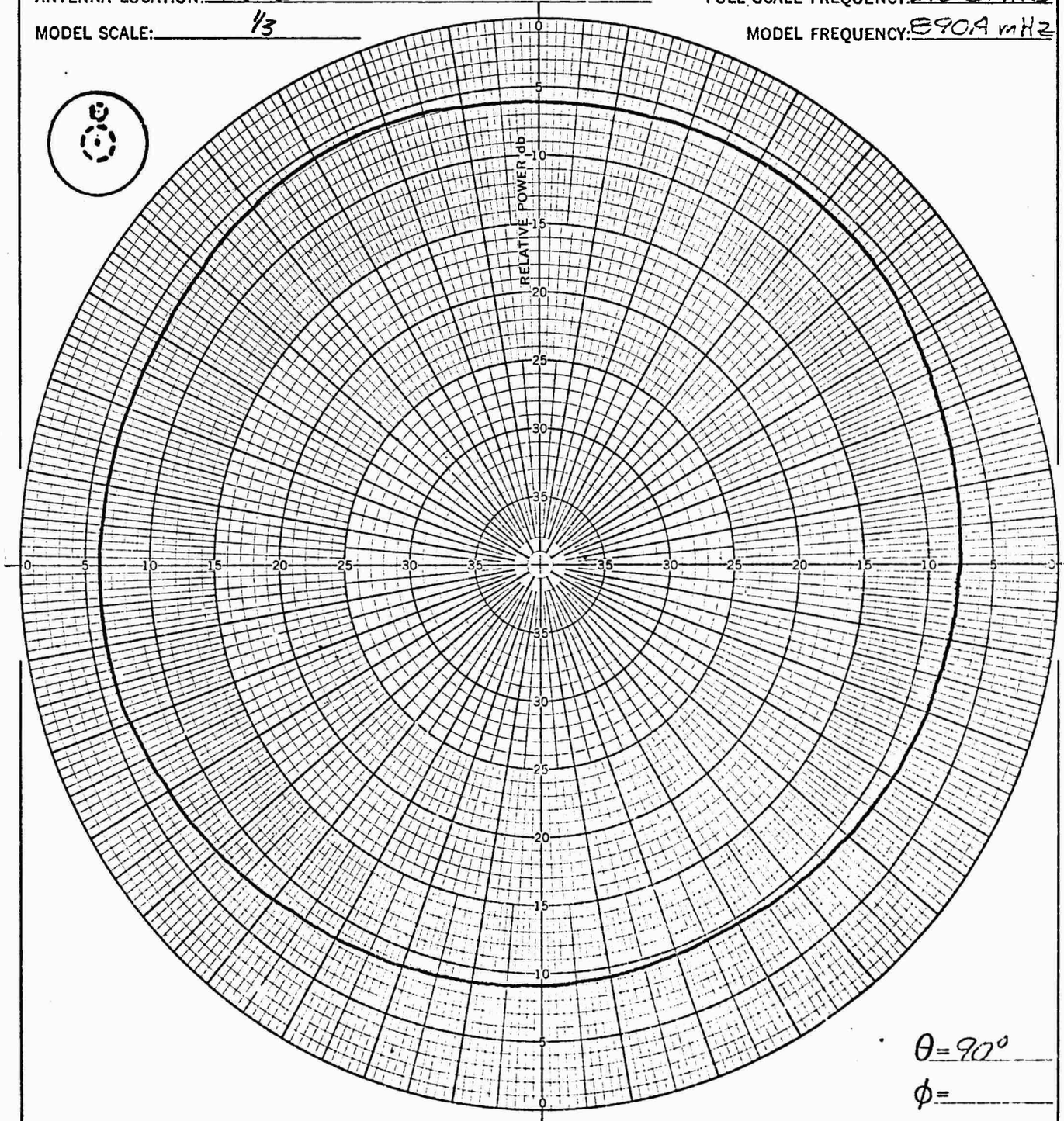
ANTENNA LOCATION: NOSE

MODEL SCALE: 1/3

VEHICLE: GEMINI B W/MCC

FULL SCALE FREQUENCY: 296.8 mHz

MODEL FREQUENCY: 890.4 mHz



θ = 90°

ϕ =

CONFIGURATION: VII

INTEGRATOR COUNT:

POLARIZATION: Eϕ [ ] Eθ [✓] OTHER:

PLOTTED IN: RELATIVE POWER db

REMARKS: GE RANGE HORIZONTAL

TRANSMISSION DISTANCE: 500 ft

OBSERVER: EM & CS DATE: 12-6-67

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PAGE 81

REPORT TR 058-ADA.03

MODEL 195B

ANTENNA: NOSE STUB

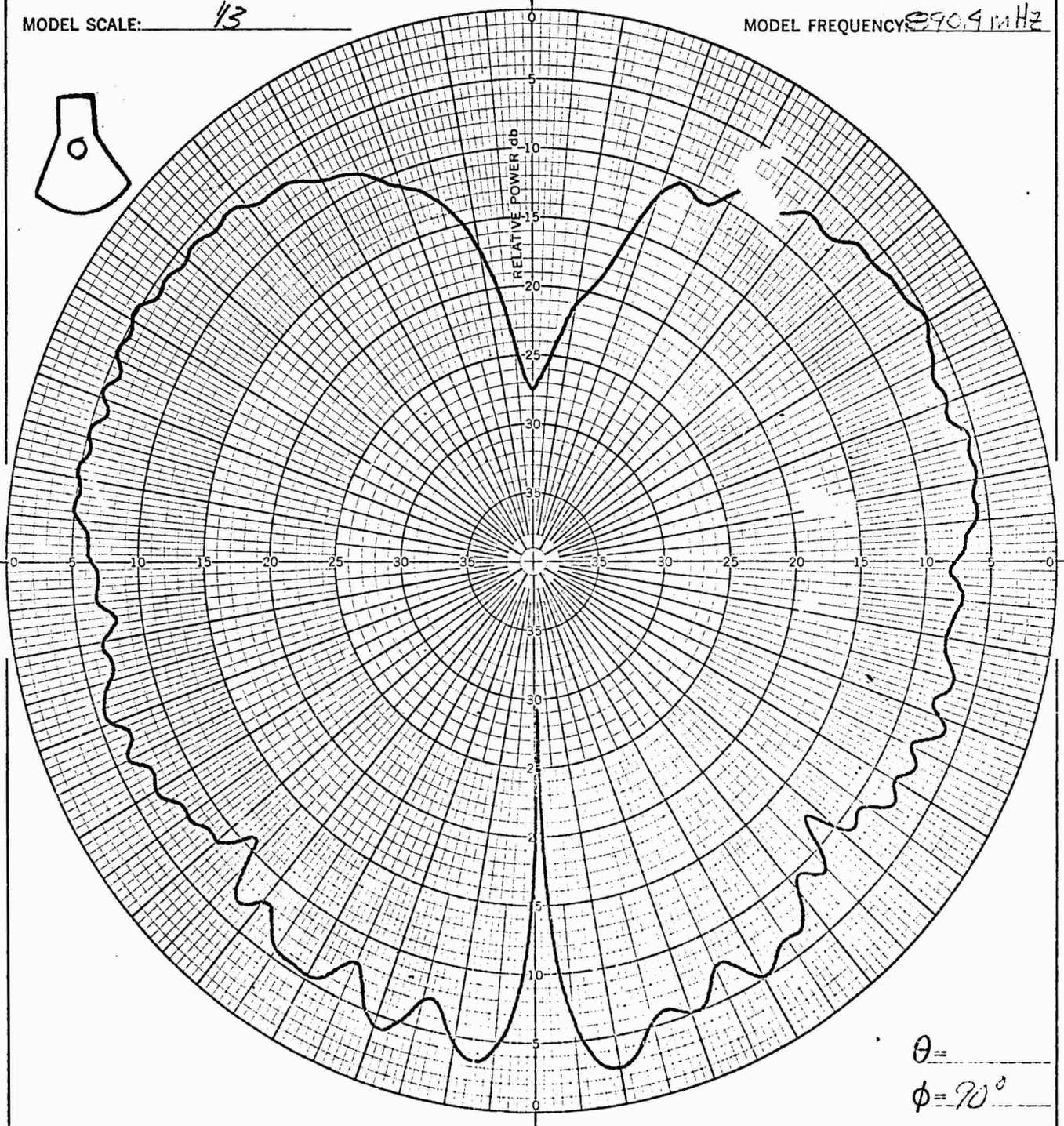
ANTENNA LOCATION: NOSE

MODEL SCALE: 1/3

VEHICLE: GEMINI B W/MDL

FULL SCALE FREQUENCY: 296.8 mHz

MODEL FREQUENCY: 890.4 mHz



CONFIGURATION: VII

REMARKS: 6 FT RANGE HORIZONTAL

INTEGRATOR COUNT:

POLARIZATION: Eφ [ ] Eθ [/] OTHER:

PLOTTED IN: RELATIVE POWER db

TRANSMISSION DISTANCE: 500 ft.

OBSERVER: [illegible] DATE: 12-2-67

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PAGE 82

REPORT TR 058-ADA.03

MODEL 195B

ANTENNA: NOSE STUB

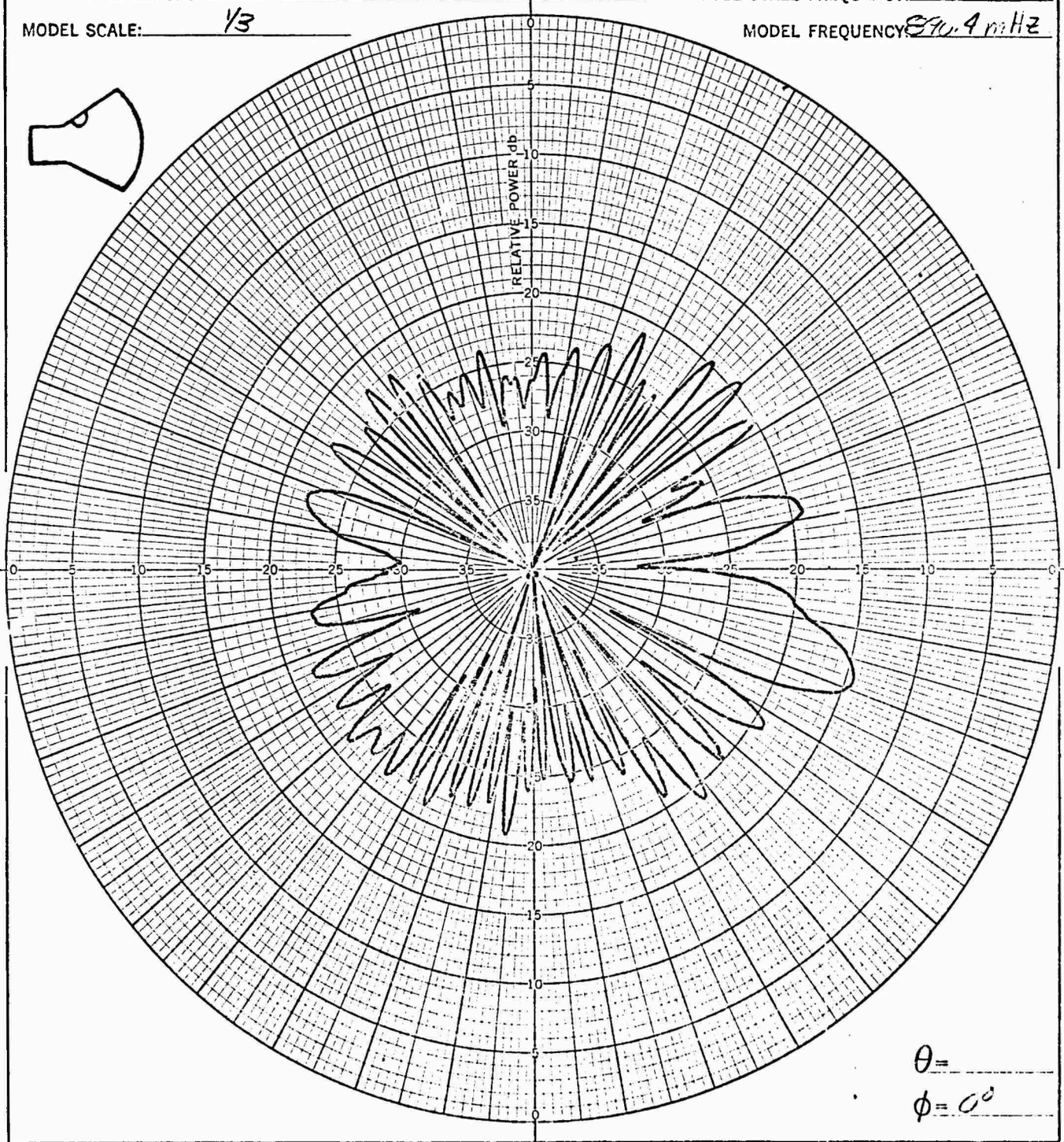
ANTENNA LOCATION: NOSE

MODEL SCALE: 1/3

VEHICLE: GEMINI B W/MOL

FULL SCALE FREQUENCY: 296.8 mHz

MODEL FREQUENCY: 890.4 mHz



CONFIGURATION: VIII

w/o Nose Fairing

REMARKS: φ = RANGE VERTICAL

INTEGRATOR COUNT:

POLARIZATION: Eφ [✓] Eθ [ ] OTHER:

PLOTTED IN: RELATIVE POWER db

TRANSMISSION DISTANCE: 500 ft.

OBSERVER: E.H. & C.S. DATE: 12-6-67

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PAGE 83

REPORT TR 058-ADA.03

MODEL 195B

ANTENNA: NOSE STUB

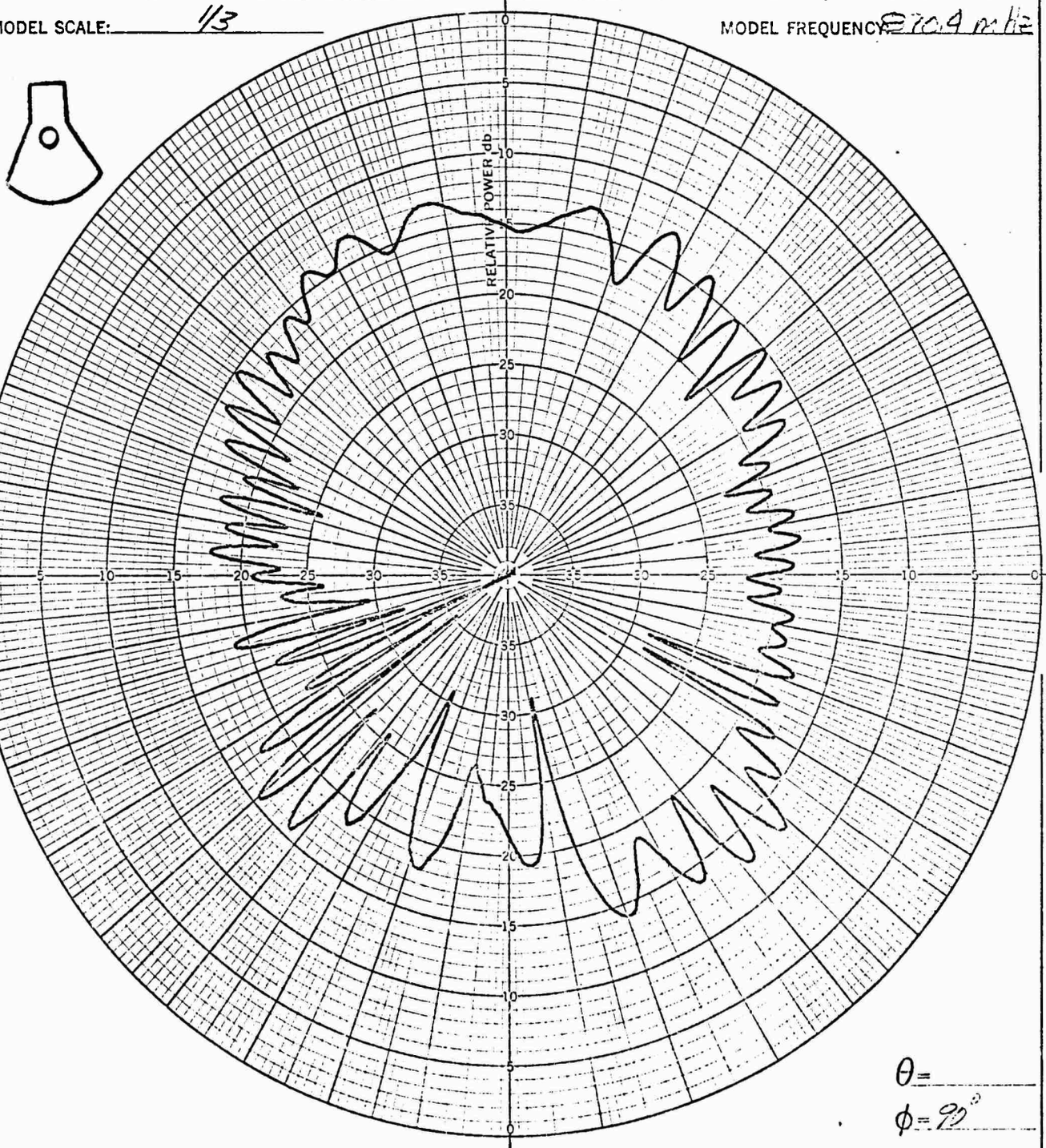
ANTENNA LOCATION: NOSE

MODEL SCALE: 1/3

VEHICLE: GEMINI B W/MDL

FULL SCALE FREQUENCY: 296 mHz

MODEL FREQUENCY: 2704 mHz



θ =

φ = 90°

CONFIGURATION: VIII

REMARKS: φ = RANGE VERTICAL

INTEGRATOR COUNT:

POLARIZATION: Eφ ✓ Eθ ☐ OTHER:

PLOTTED IN: RELATIVE POWER db

TRANSMISSION DISTANCE: 500 ft

OBSERVER: [illegible] DATE: 12-3-[illegible]

DATE

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ST. LOUIS, MISSOURI

PAGE 84

REPORT TR 058-ADA.03

MODEL 195B

ANTENNA: NOSE STUB

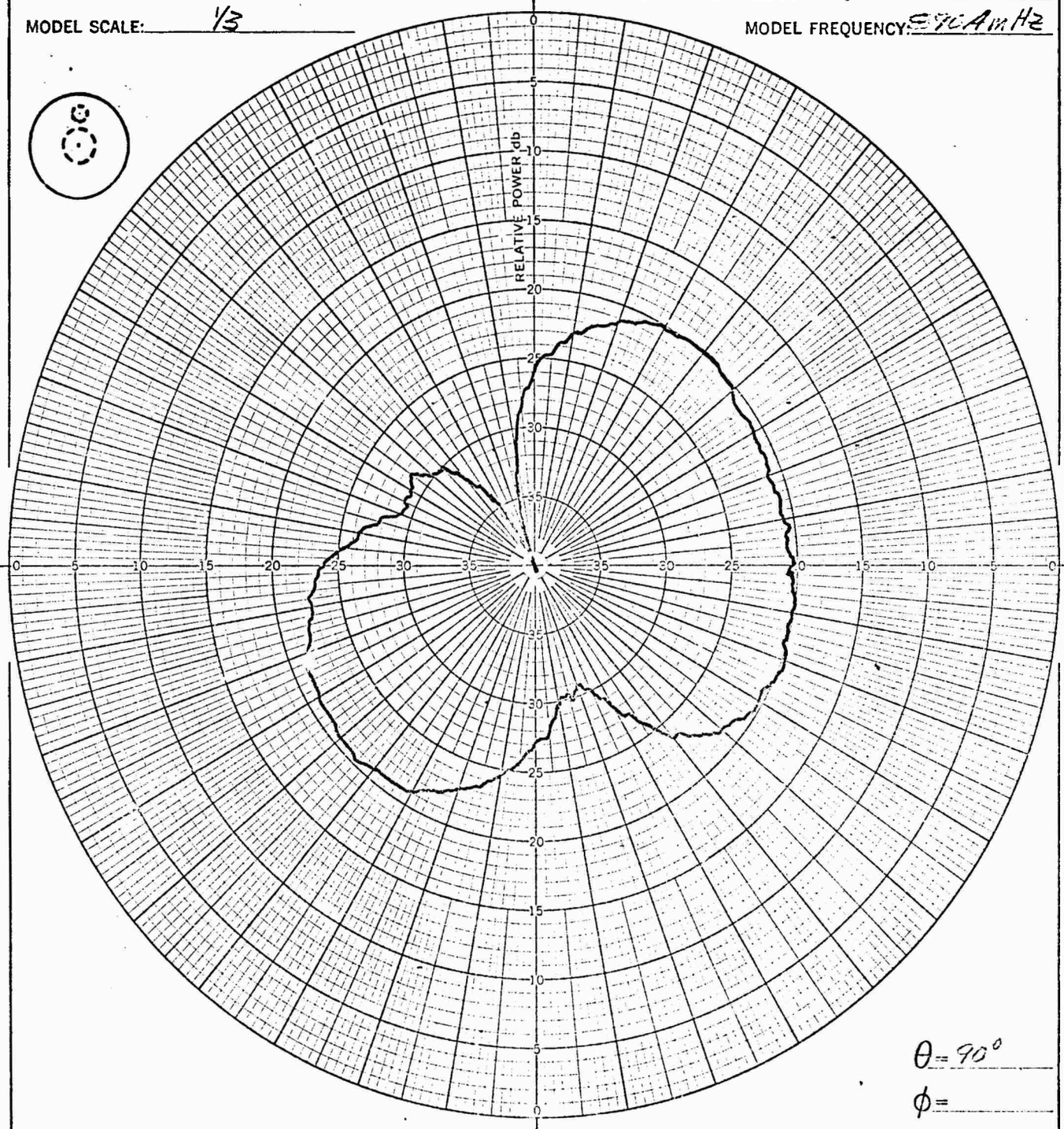
ANTENNA LOCATION: NOSE

MODEL SCALE: 1/3

VEHICLE: GEMINI B W/MCL

FULL SCALE FREQUENCY: 696 Em Hz

MODEL FREQUENCY: 870 Am Hz



CONFIGURATION: VIII

REMARKS: ϕ = PLANE VERTICAL

INTEGRATOR COUNT:

POLARIZATION: Eϕ [✓] Eθ [ ] OTHER:

PLOTTED IN: RELATIVE POWER db

TRANSMISSION DISTANCE: 500 ft.

OBSERVER: [illegible] DATE: 12-6-67

MAC 231YL (7 MAY 64)

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MCDONNELL
ST. LOUIS, MISSOURI

PAGE 85

REPORT TR 058-ADA.03

MODEL 195B

ANTENNA: NOSE STUB

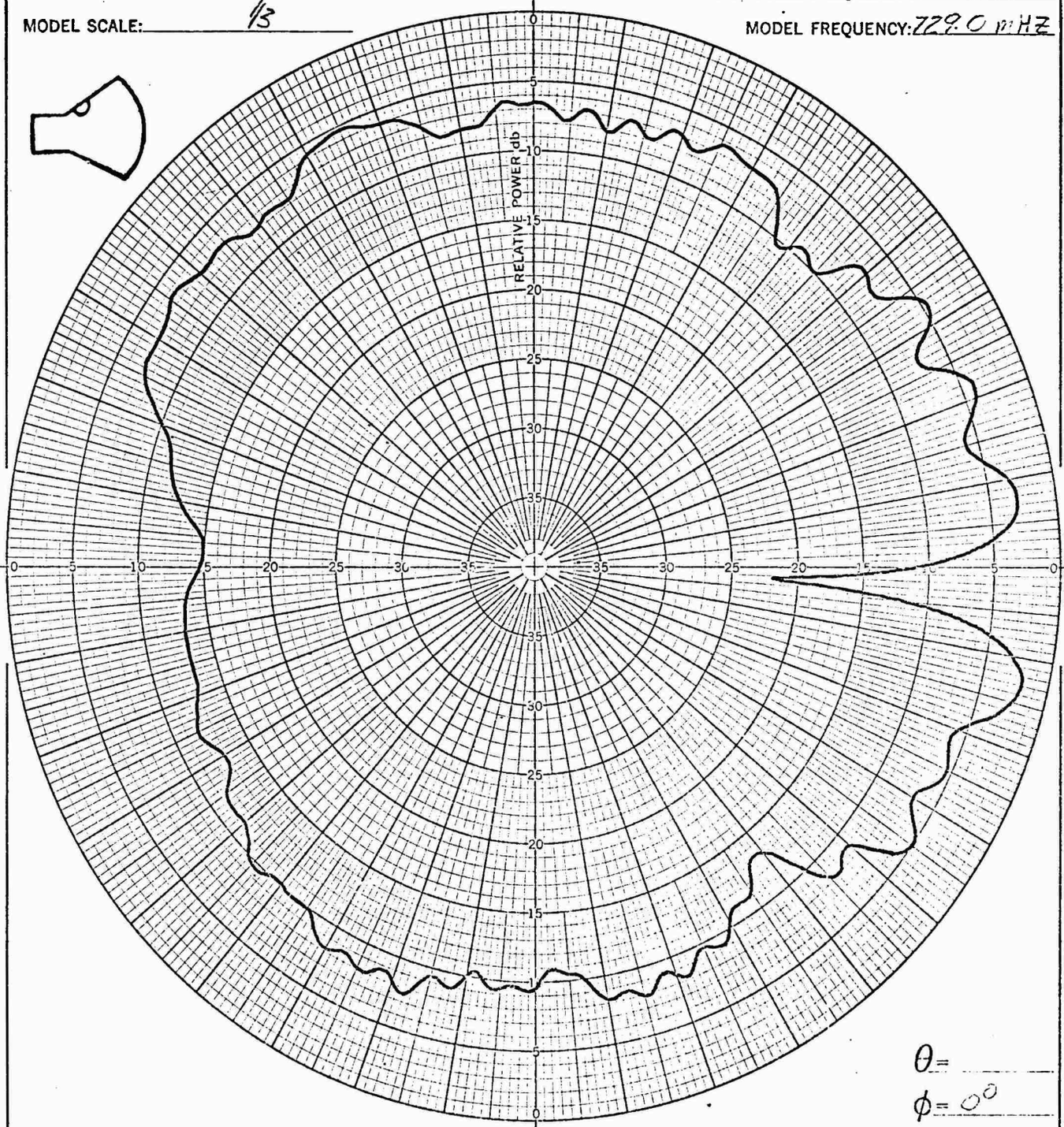
ANTENNA LOCATION: NOSE

MODEL SCALE: 1/3

VEHICLE: GEMINI B W/MOL

FULL SCALE FREQUENCY: 243.0 mHz

MODEL FREQUENCY: 229.0 mHz



$\theta =$

$\phi = 0^{\circ}$

CONFIGURATION: IX

w/o Nose Fairing

REMARKS: @ E RANGE HORIZONTAL

INTEGRATOR COUNT:

POLARIZATION: Eϕ [ ] Eθ [✓] OTHER:

PLOTTED IN: RELATIVE POWER db

TRANSMISSION DISTANCE: 500 ft.

OBSERVER: EM & CS DATE: 12-6-67

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MCDONNELL
ST. LOUIS, MISSOURI

PAGE 86

REPORT TR 058-ADA.03

MODEL 195B

ANTENNA: NOSE STUB

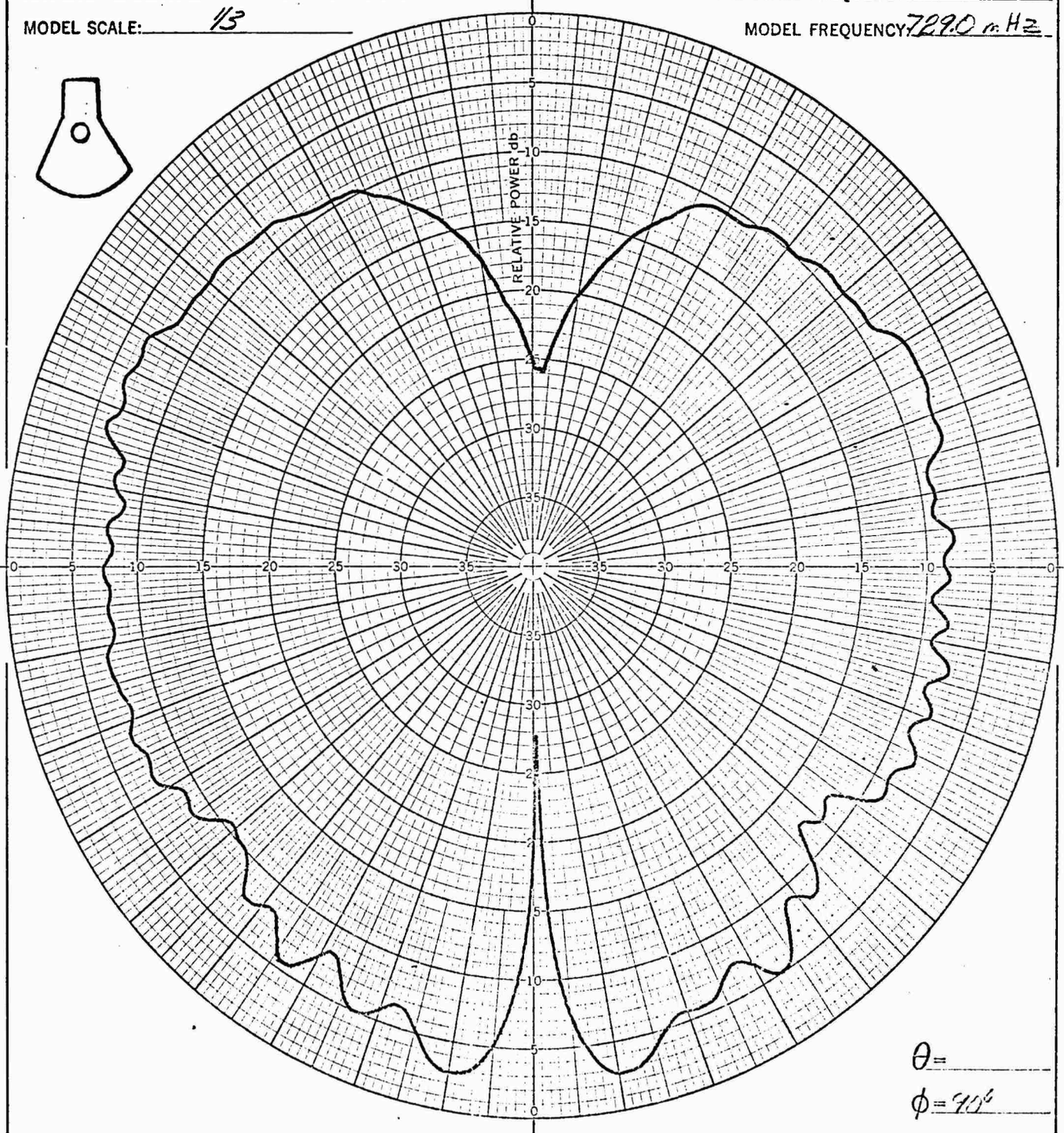
ANTENNA LOCATION: NOSE

MODEL SCALE: 1/3

VEHICLE: GEMINI B W/MOL

FULL SCALE FREQUENCY: 243.0 mHz

MODEL FREQUENCY: 729.0 mHz



θ =

φ = 90°

CONFIGURATION: IX

REMARKS: θ E FIELD HORIZONTAL

INTEGRATOR COUNT:

POLARIZATION: Eφ [ ] Eθ [✓] OTHER:

PLOTTED IN: RELATIVE POWER db

TRANSMISSION DISTANCE: 500 ft.

OBSERVER: FM & CS DATE: 12-6-67

MAC 231YL (7 MAY 64)

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DATE _____

REVISED _____

REVISED _____

McDONNELL
ST. LOUIS, MISSOURI

PAGE 87

REPORT TR 058-ADA.03

MODEL 195B

ANTENNA: NOSE STUB

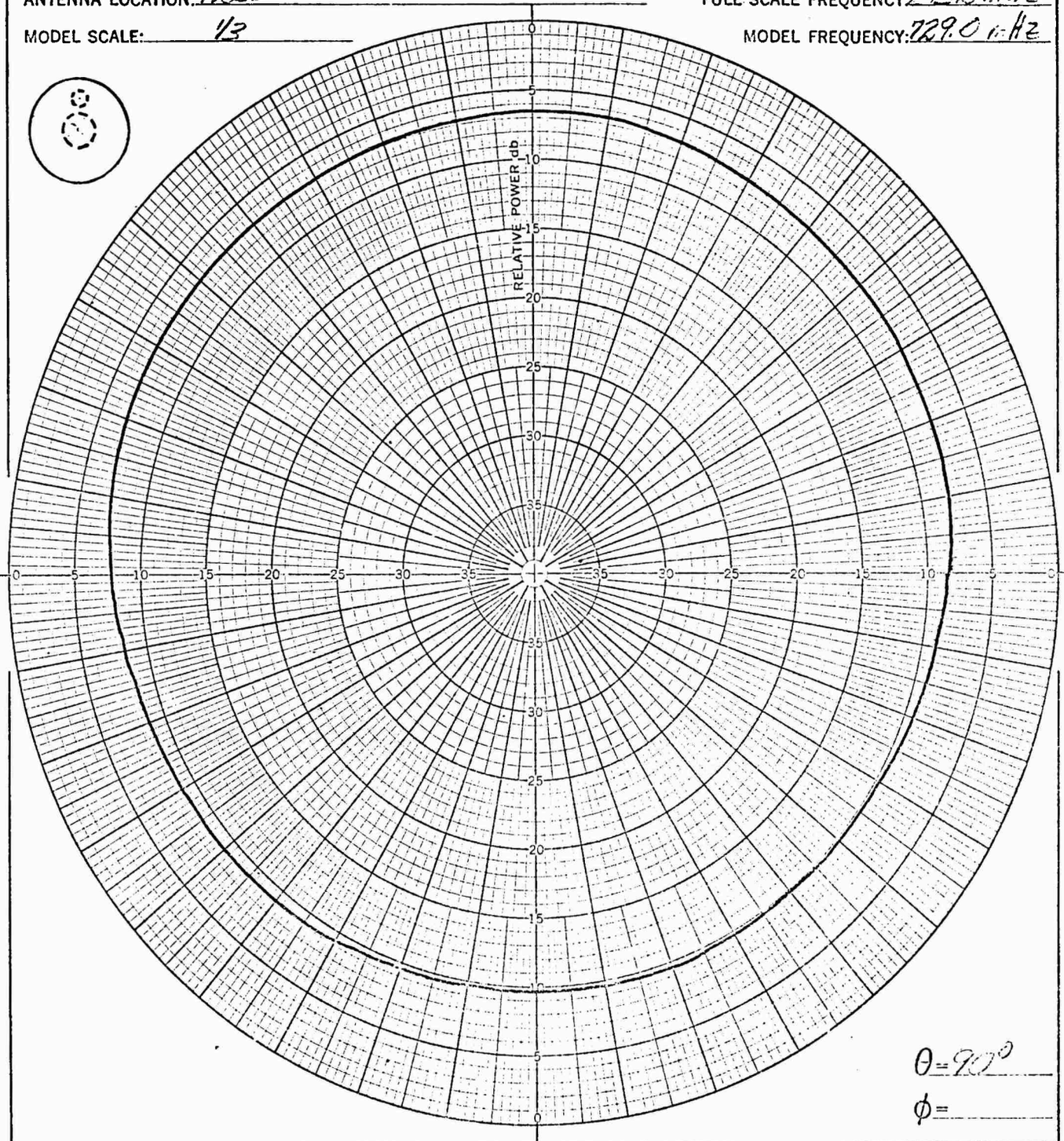
ANTENNA LOCATION: NOSE

MODEL SCALE: 1/3

VEHICLE: GEMINI B W/INCL

FULL SCALE FREQUENCY: 2430 m Hz

MODEL FREQUENCY: 729.0 m Hz



$\theta = 90^\circ$

$\phi =$

CONFIGURATION: TX

REMARKS: CO PLANE HORIZONTAL

INTEGRATOR COUNT:

POLARIZATION: Eϕ [ ] Eθ [✓] OTHER:

PLOTTED IN: RELATIVE POWER db

TRANSMISSION DISTANCE: 500 ft

OBSERVER: EM? CS DATE: 12-6-67

MAC 231YL (7 MAY 64)

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MCDONNELL
ST. LOUIS, MISSOURI

PAGE 88

REPORT TR 058-ADA.03

MODEL 195B

ANTENNA: NOSE STUB

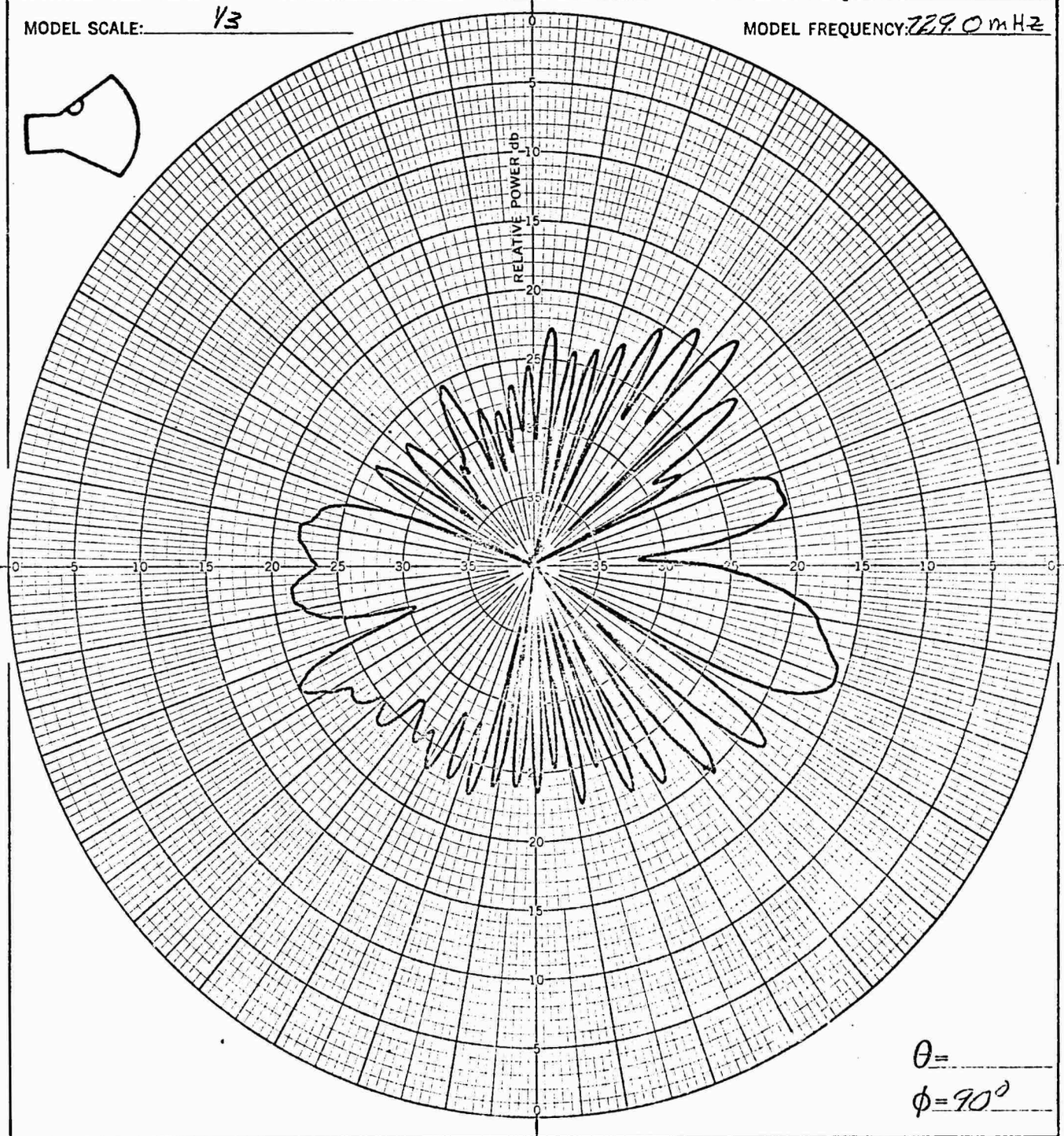
ANTENNA LOCATION: NOSE

MODEL SCALE: 1/3

VEHICLE: GEMINI B W/MOL

FULL SCALE FREQUENCY: 243.0 mHz

MODEL FREQUENCY: 729.0 mHz



CONFIGURATION: X

w/o NOSE FAIRING.

REMARKS: φ = PLANE VERTICAL

INTEGRATOR COUNT:

POLARIZATION: Eφ [✓] Eθ [ ] OTHER:

PLOTTED IN: RELATIVE POWER db

TRANSMISSION DISTANCE: 500 Ft.

OBSERVER: EMPCS DATE: 12-6-67

MAC 231YL (7 MAY 64)

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DATE

REVISED

REVISED

MCDONNELL
ST. LOUIS, MISSOURI

PAGE 89

REPORT TR 058-ADA.03

MODEL 195B

ANTENNA: NOSE STUB

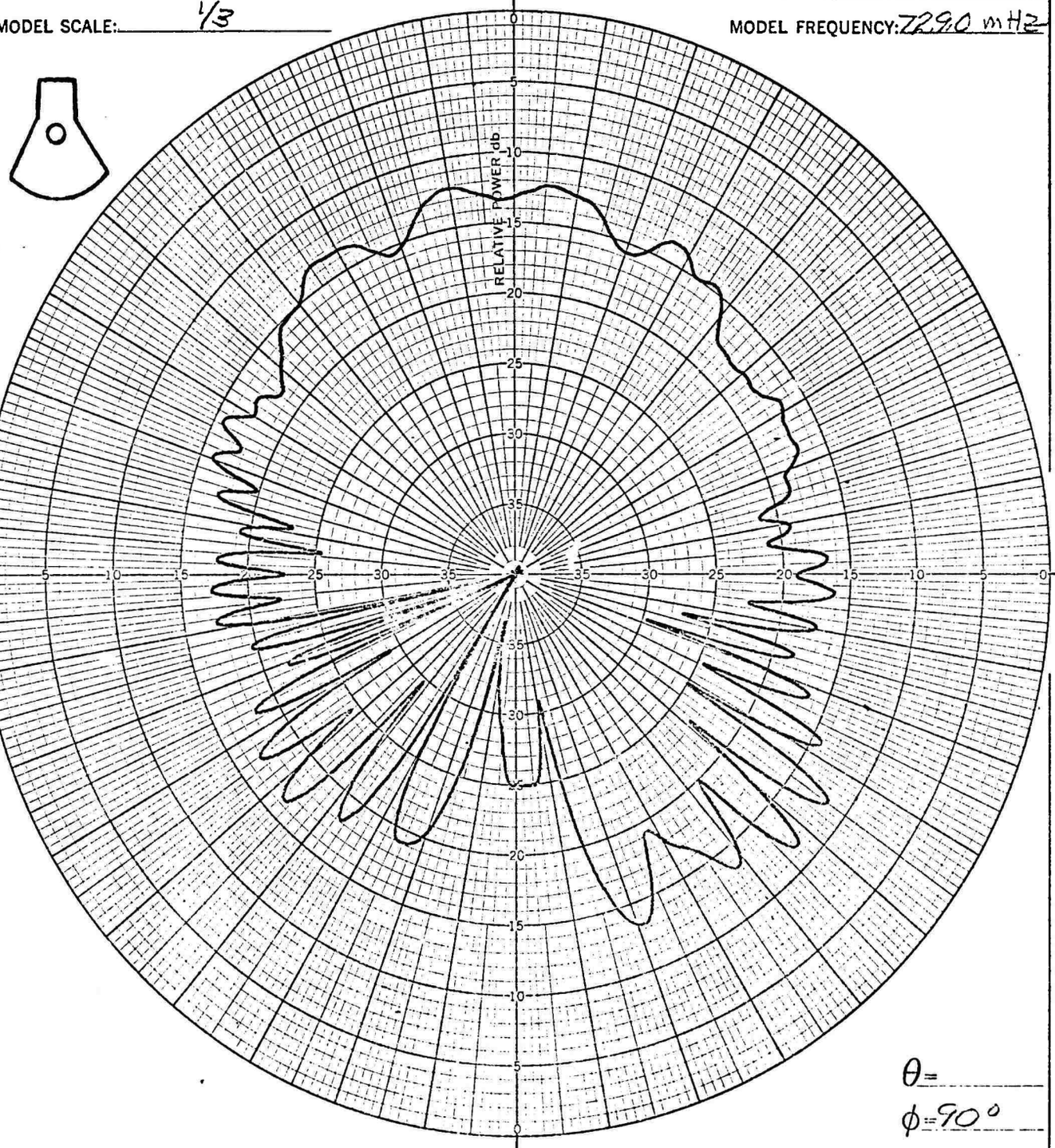
ANTENNA LOCATION: NOSE

MODEL SCALE: 1/3

VEHICLE: GEMINI B W/MCL

FULL SCALE FREQUENCY: 243.0 mHz

MODEL FREQUENCY: 72.90 mHz



θ =

φ = 90°

CONFIGURATION: X

REMARKS: φ = PLANE VERTICAL

INTEGRATOR COUNT:

POLARIZATION: Eφ [✓] Eθ [ ] OTHER:

PLOTTED IN: RELATIVE POWER db

TRANSMISSION DISTANCE: 500 Ft.

OBSERVER: EM&CS DATE: 12-6-67

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REVISED

REVISED

MCDONNELL
ST. LOUIS, MISSOURI

PAGE 90

REPORT TR 058-ADA.03

MODEL 195B

ANTENNA: NOSE STUB

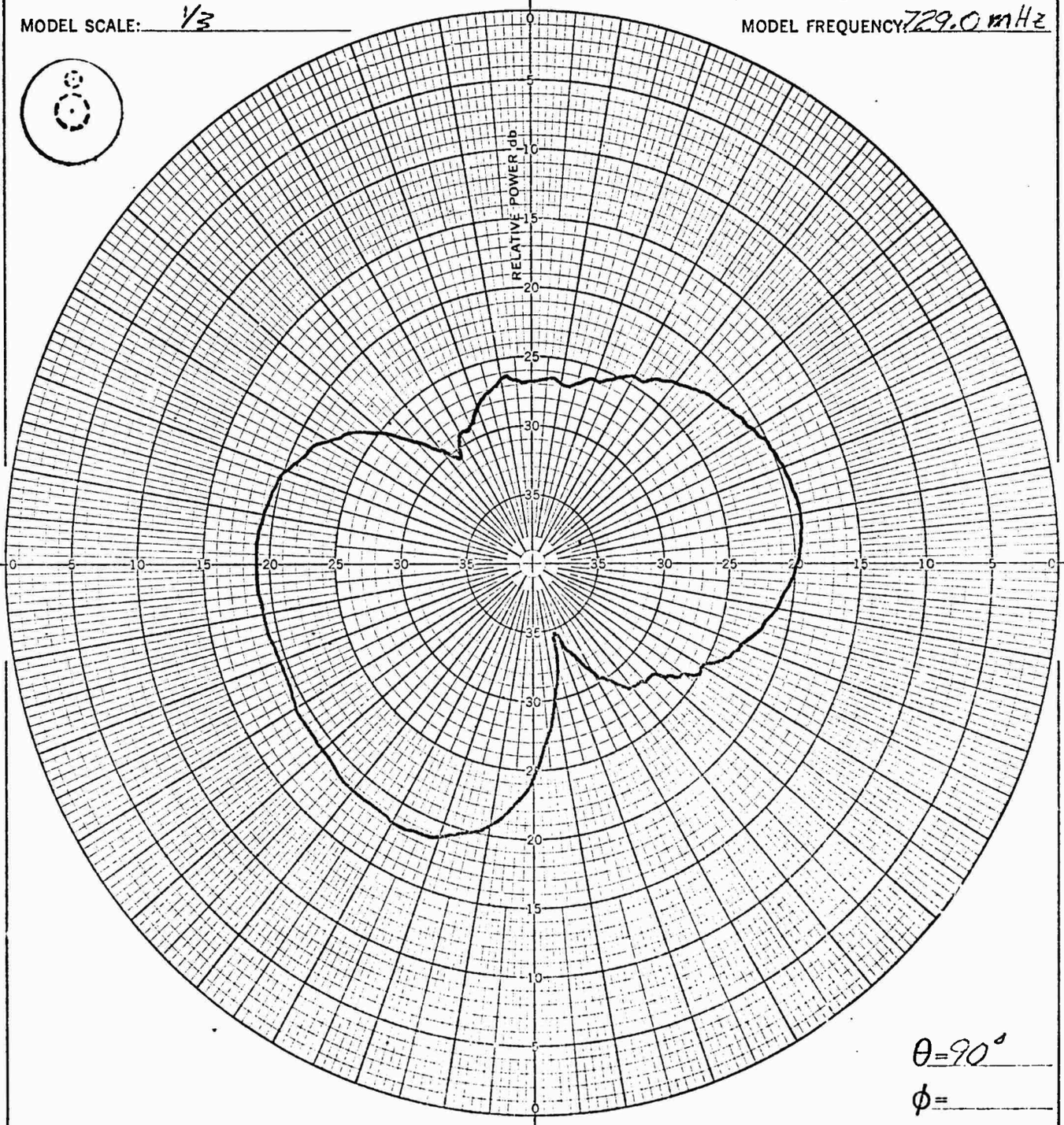
ANTENNA LOCATION: NOSE

MODEL SCALE: 1/3

VEHICLE: GEMINI B W/MOL

FULL SCALE FREQUENCY: 243.0 mHz

MODEL FREQUENCY: 729.0 mHz



CONFIGURATION: X

REMARKS: ϕ = ANGLE VERTICAL

INTEGRATOR COUNT:

POLARIZATION: Eϕ [✓] Eθ [ ] OTHER:

PLOTTED IN: RELATIVE POWER db

TRANSMISSION DISTANCE: 500 ft.

OBSERVER: EM&CS DATE: 12-6-67

DATE

REVISED

REVISED

MCDONNELL

ST. LOUIS, MISSOURI

PAGE 91

REPORT TR 058-ADA.03

MODEL 195B

ANTENNA: NOSE STUB

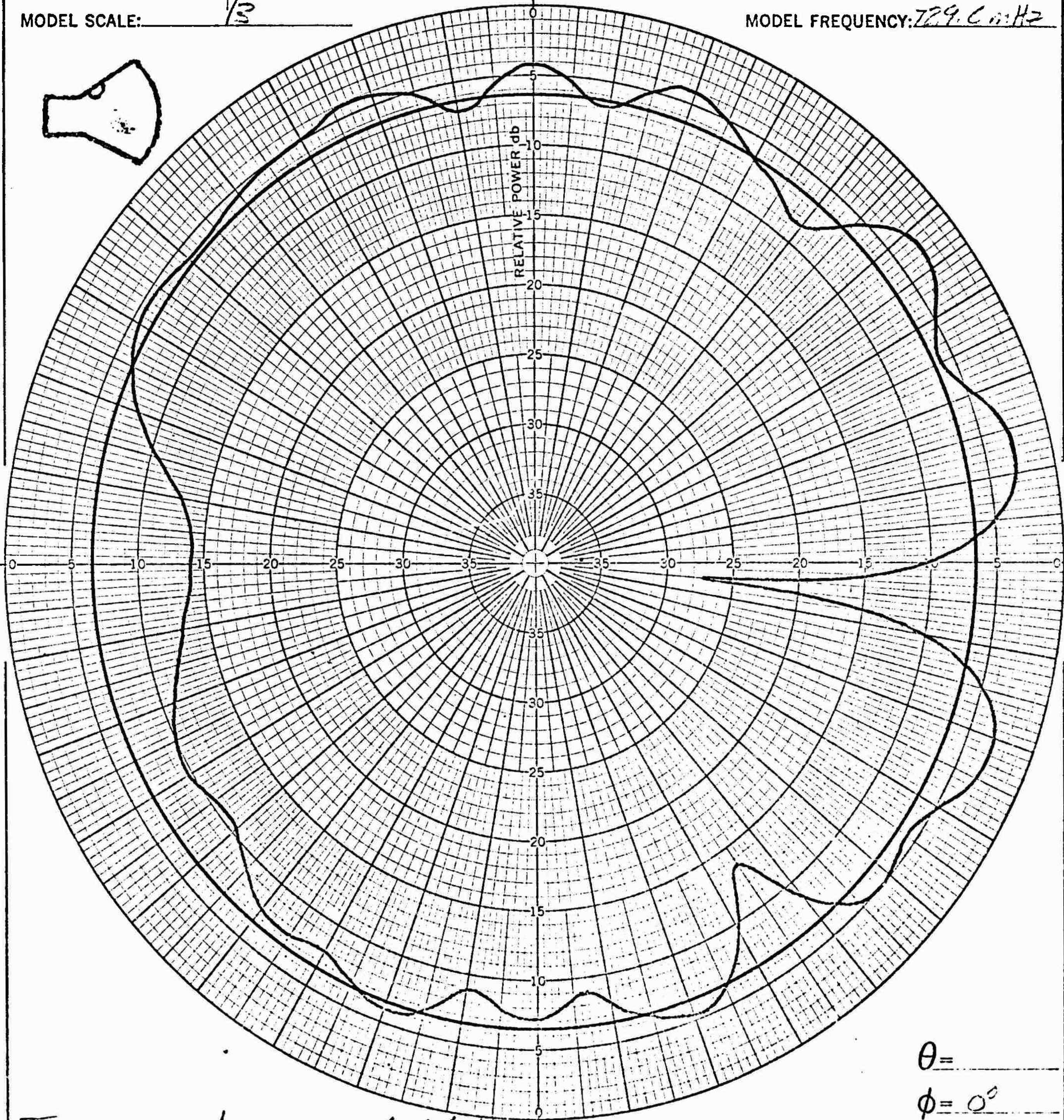
ANTENNA LOCATION: NOSE

MODEL SCALE: 1/3

VEHICLE: GEMINI B

FULL SCALE FREQUENCY: 243.0 mHz

MODEL FREQUENCY: 729.0 mHz



θ=

φ= 0°

ISOTROPIC LEVEL - 6.67 db

CONFIGURATION: XI

[illegible]

REMARKS: [illegible] LINE

[illegible]

INTEGRATOR COUNT:

POLARIZATION: Eφ [ ] Eθ [✓] OTHER:

PLOTTED IN: RELATIVE POWER db

TRANSMISSION DISTANCE: [illegible] ft

OBSERVER: [illegible]

DATE: 11-6-[illegible]

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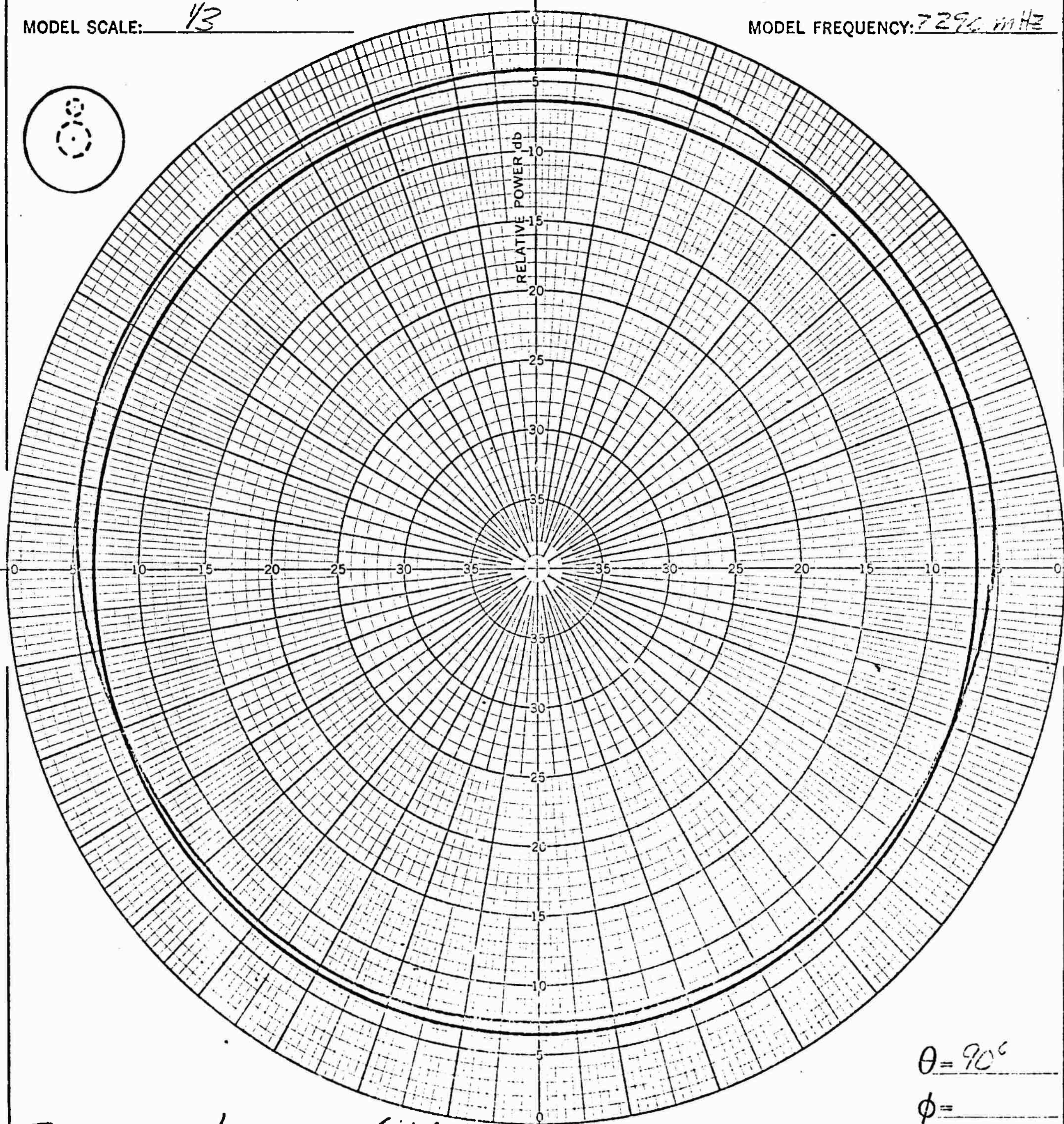
DATE
REVISED
REVISED

PAGE 92
REPORT TR 058-ADA.03
MODEL 195B

ANTENNA: NOSE STUB
ANTENNA LOCATION: NOSE
MODEL SCALE: 1/3

VEHICLE: GEMINI B
FULL SCALE FREQUENCY: 243.0 mHz
MODEL FREQUENCY: 729.0 mHz



$\theta = 90°$
$\phi =$

ISOTROPIC LEVEL -6.64 db

CONFIGURATION: XI

REMARKS: [illegible]
FAR RANGE HORIZONTAL

INTEGRATOR COUNT: [illegible]
POLARIZATION: Eφ [ ] Eθ [✓] OTHER:
PLOTTED IN: RELATIVE POWER db
TRANSMISSION DISTANCE: 50 ft
OBSERVER: [illegible]
DATE: 5-6-[illegible]

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REVISED

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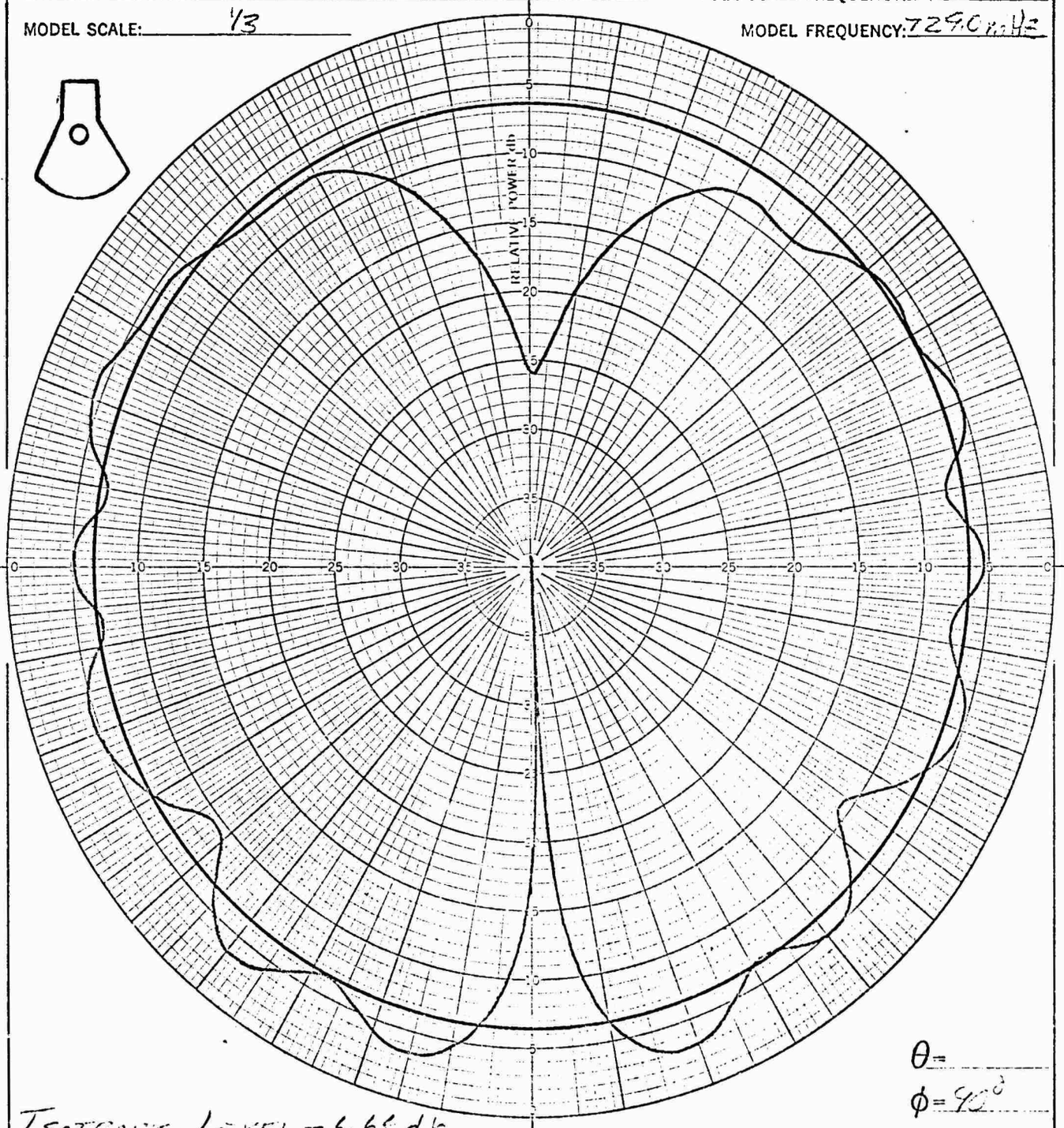
ST. LOUIS, MISSOURI

PAGE 93
REPORT TR 058-ADA.03
MODEL 195B

ANTENNA: NOSE STUB
ANTENNA LOCATION: NOSE
MODEL SCALE: 1/3

VEHICLE: GEMINI
FULL SCALE FREQUENCY: 15 OMHz
MODEL FREQUENCY: 7290 MHz



θ =
φ = 90°

Isotropic Level = -6.6 db

CONFIGURATION: XL

REMARKS: UNSHIELDED 50Ω LINE
E.G.E. RANGE HORIZONTAL

INTEGRATOR COUNT:

POLARIZATION: Eφ [ ] Eθ [✓] OTHER:

PLOTTED IN: RELATIVE POWER db

TRANSMISSION DISTANCE: 52 ft

OBSERVER: EMC DATE: 4-[illegible]-67

MAC 231YL 17 MAY 64

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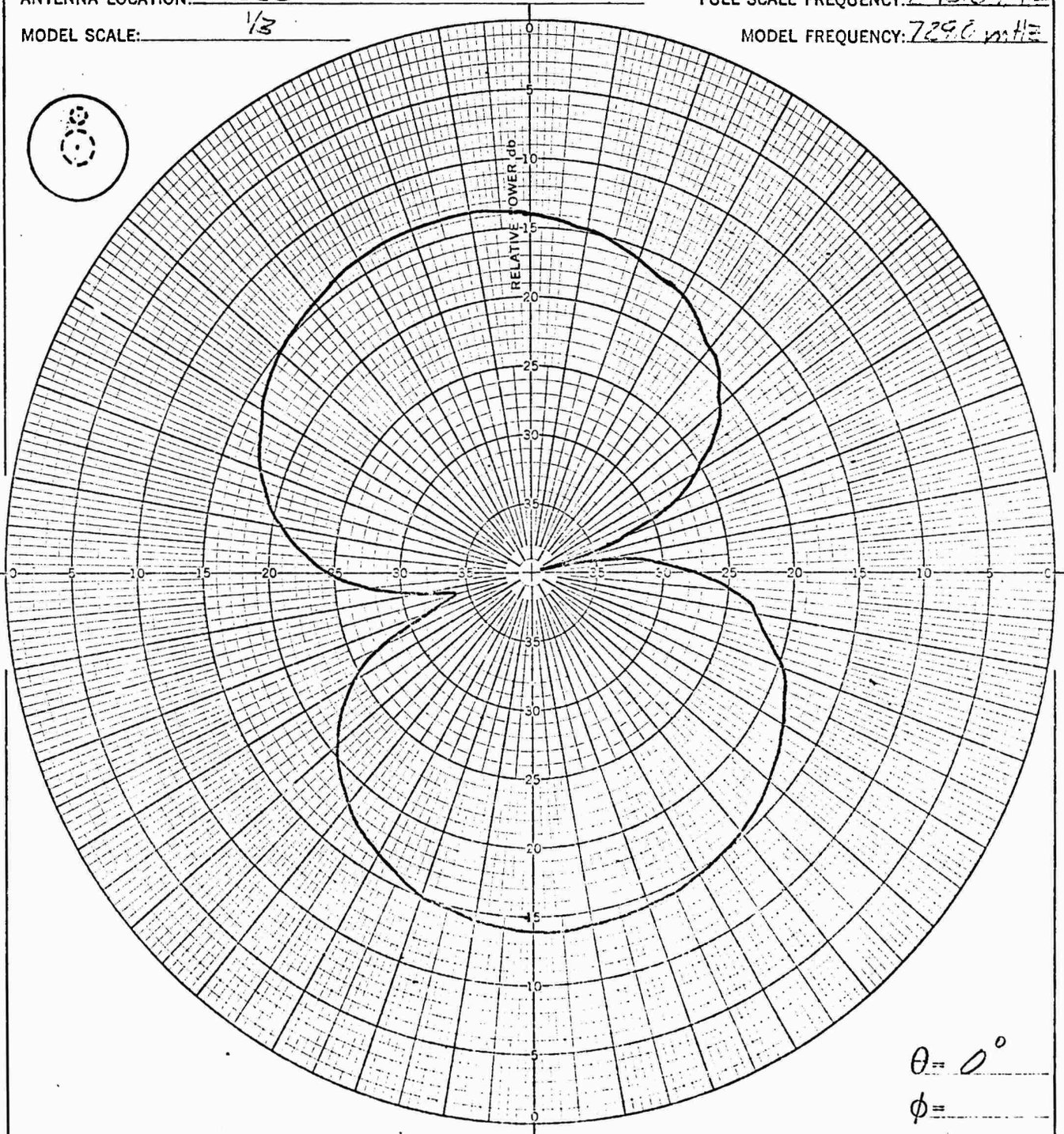
MCDONNELL
ST. LOUIS, MISSOURI

PAGE 94
REPORT TR 058-ADA.03
MODEL 195B

ANTENNA: NOSE STUB
ANTENNA LOCATION: NOSE
MODEL SCALE: 1/3

VEHICLE: GEMINI B
FULL SCALE FREQUENCY: 243.0 mHz
MODEL FREQUENCY: 729.0 mHz



$\theta = 0°$

$\phi =$

CONFIGURATION: XI

REMARKS:

INTEGRATOR COUNT:

POLARIZATION: $E\phi$ [ ] $E\theta$ [✓] OTHER:

PLOTTED IN: RELATIVE POWER db

TRANSMISSION DISTANCE: 20 ft

OBSERVER: FMCS DATE:

MAC 251YL (7 MAY 64)

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REVISED _____

MCDONNELL
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PAGE 95

REPORT TR 058-ADA.03

MODEL 195B

ANTENNA: NOSE STUB

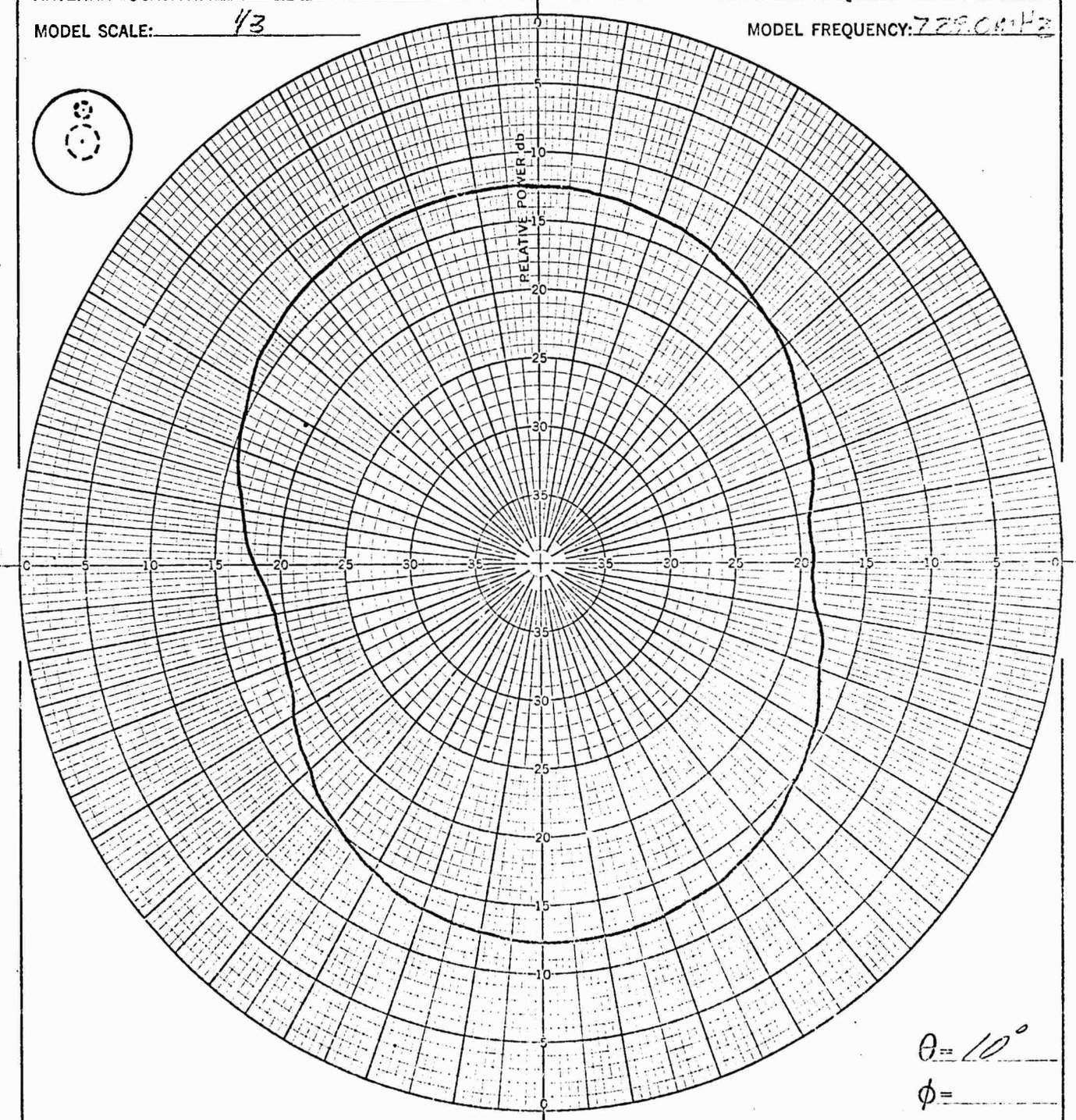
ANTENNA LOCATION: NOSE

MODEL SCALE: 1/3

VEHICLE: GEMINI B

FULL SCALE FREQUENCY: 243.0 MHz

MODEL FREQUENCY: 729.0 MHz



θ = 10°

ϕ = _____

CONFIGURATION: XT

REMARKS:

INTEGRATOR COUNT: 0766

POLARIZATION: Eϕ ☐ Eθ ☑ OTHER:

PLOTTED IN: RELATIVE POWER db

TRANSMISSION DISTANCE: 30 ft.

OBSERVER: EM&CS DATE: 4-[illegible]-[illegible]

MAC 2111YL (7 MAY 64)

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REVISED _____

MCDONNELL
ST. LOUIS, MISSOURI

PAGE 96

REPORT TR 058-ADA.03

MODEL 195B

ANTENNA: NOSE STUB

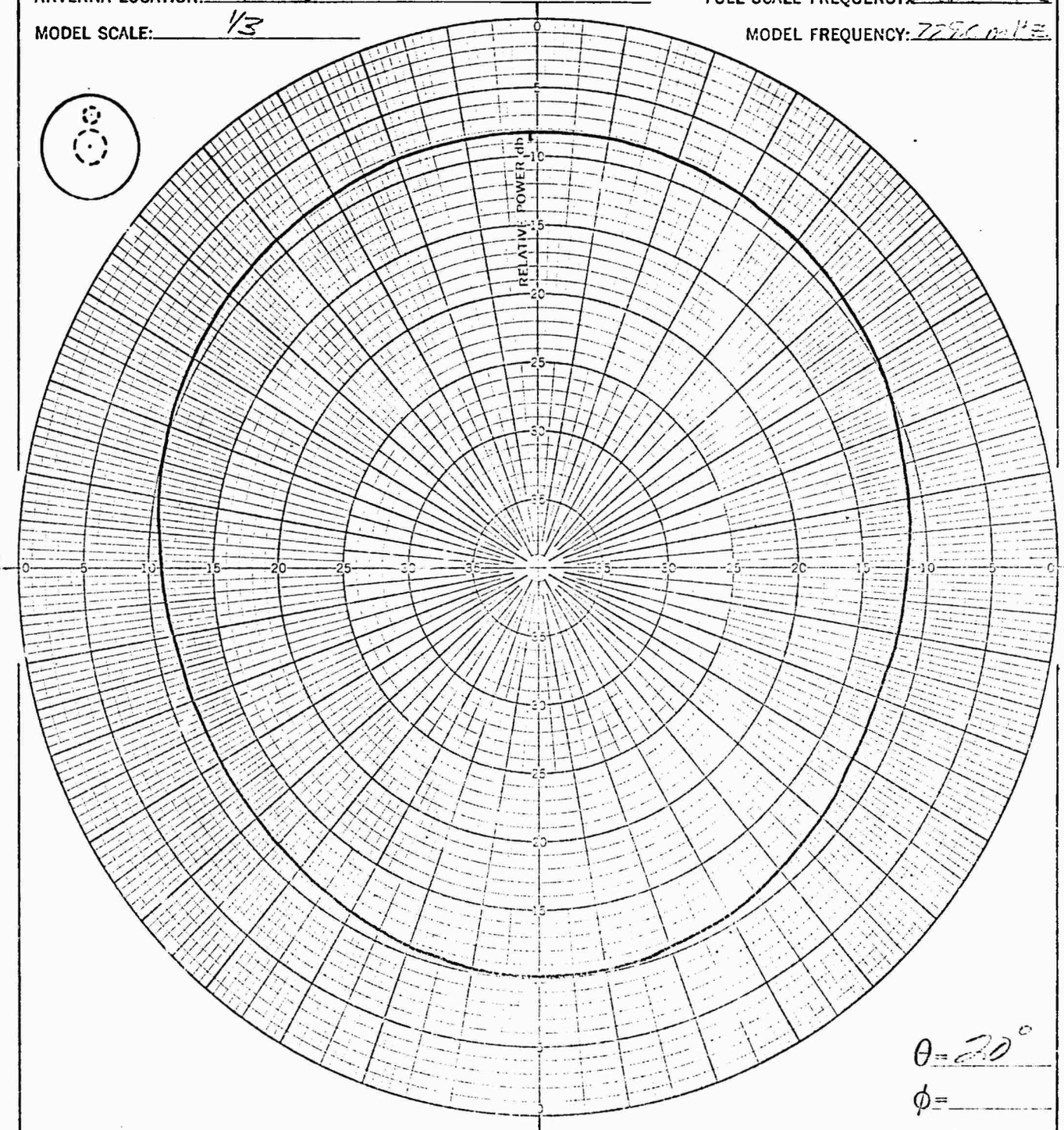
ANTENNA LOCATION: NOSE

MODEL SCALE: 1/3

VEHICLE: SERIES F

FULL SCALE FREQUENCY: 2287 mc

MODEL FREQUENCY: 2287 mc



θ = 20°

ϕ = _____

CONFIGURATION: FT

REMARKS:

INTEGRATOR COUNT: 2043

POLARIZATION: Eϕ [ ] Eθ [✓] OTHER:

PLOTTED IN: RELATIVE POWER db

TRANSMISSION DISTANCE: 500 ft

OBSERVER: [illegible] DATE: [illegible]

MAC 231YL (7 MAY 64)

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REVISED _____

MCDONNELL
ST. LOUIS, MISSOURI

PAGE 97

REPORT TR 058-ADA.03

MODEL 195B

ANTENNA: NOSE STUB

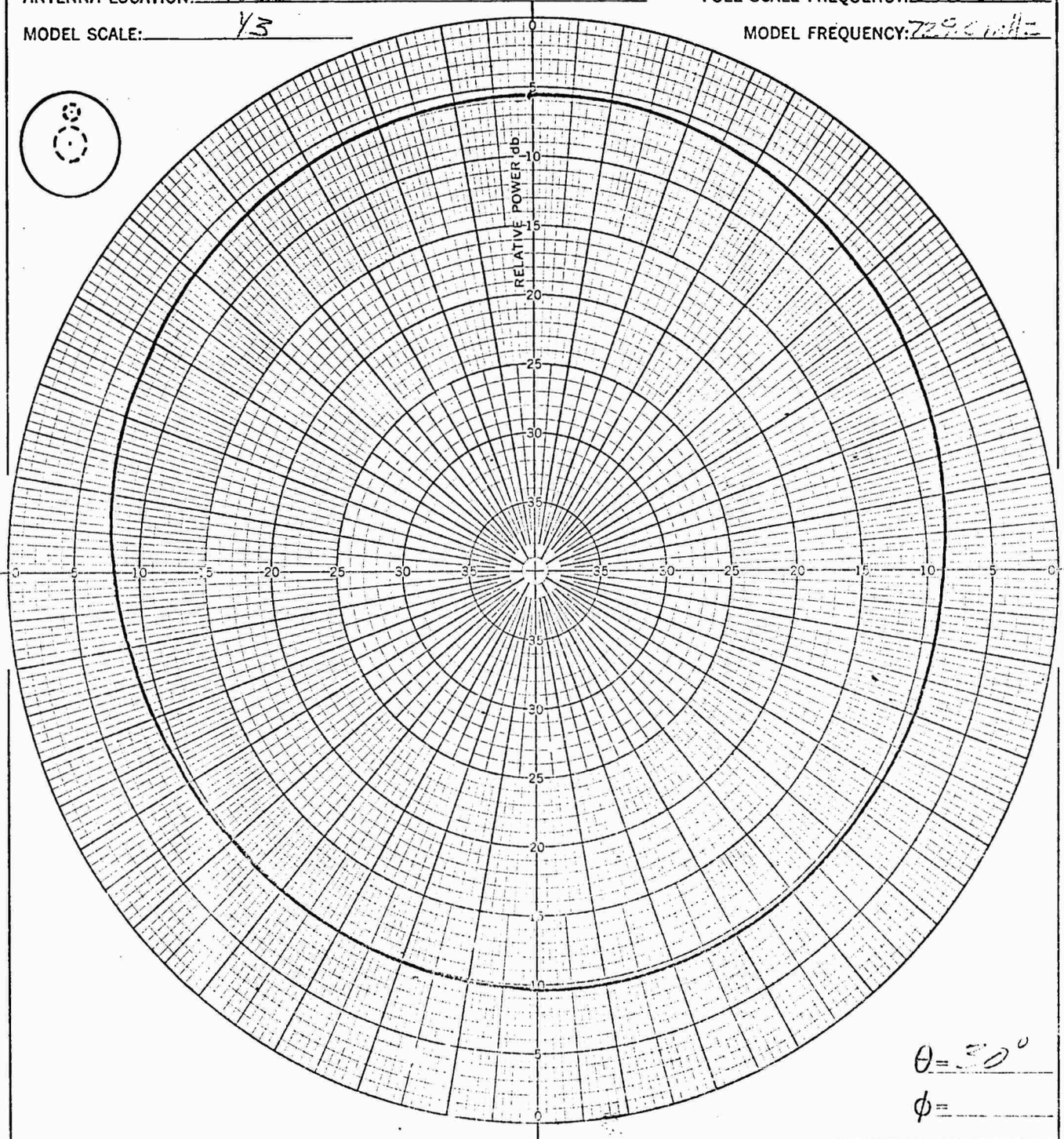
ANTENNA LOCATION: NOSE

MODEL SCALE: 1/3

VEHICLE: GEMINI 3

FULL SCALE FREQUENCY: 243.0 mHz

MODEL FREQUENCY: 729.0 mHz



θ = 90°

ϕ = _____

CONFIGURATION: X1

INTEGRATOR COUNT: 3378

POLARIZATION: Eϕ [ ] Eθ [X] OTHER:

PLOTTED IN: RELATIVE POWER db

REMARKS: _____

TRANSMISSION DISTANCE: 24 ft.

OBSERVER: FINCH DATE: 14-[illegible]

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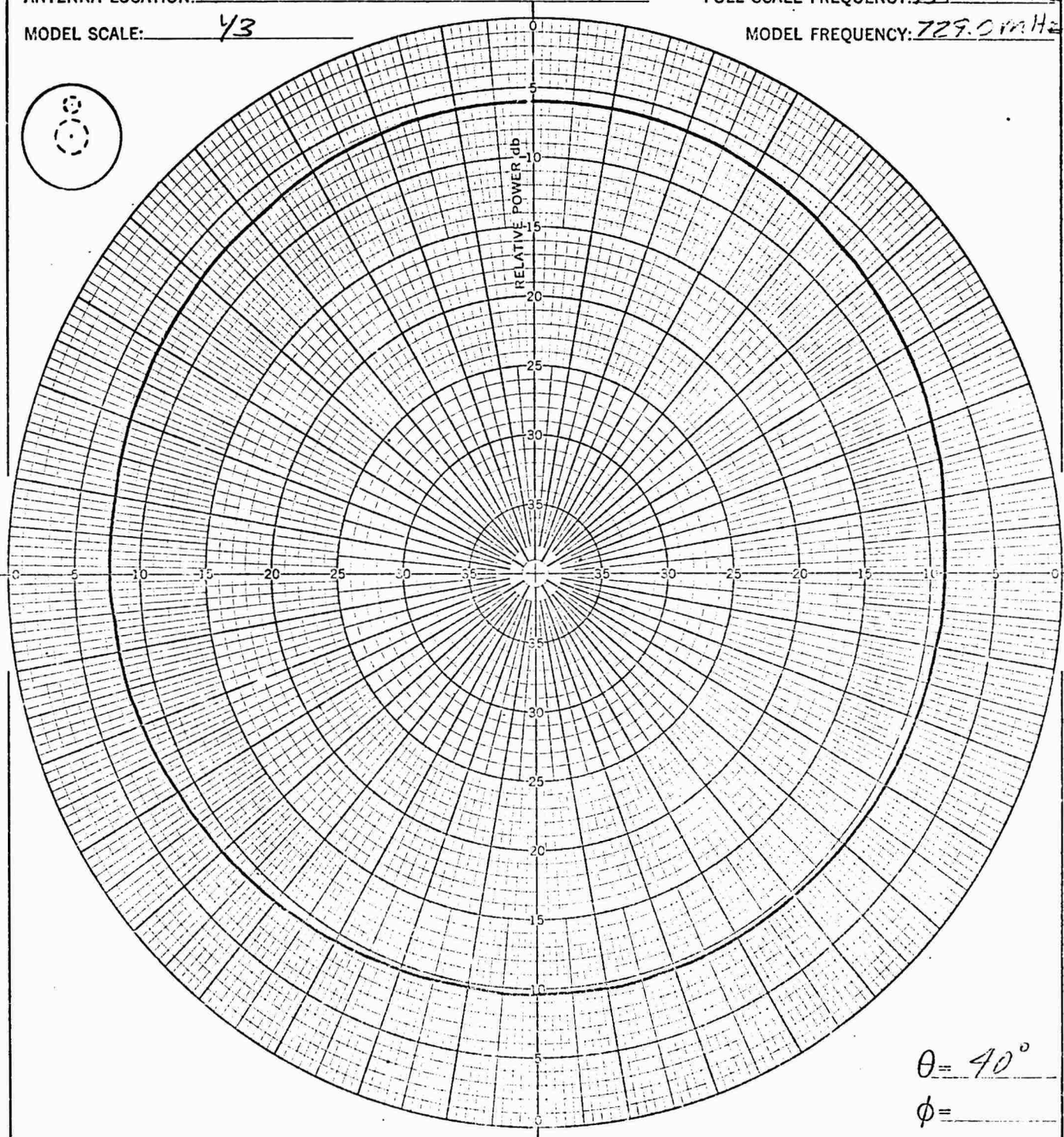
REVISED

MCDONNELL
ST. LOUIS, MISSOURI

PAGE 98
REPORT TR 058-ADA.03
MODEL 195B

ANTENNA: NOSE STUB
ANTENNA LOCATION: NOSE
MODEL SCALE: 1/3

VEHICLE: GEMINI B
FULL SCALE FREQUENCY: 243.0 mHz
MODEL FREQUENCY: 729.0 mHz



θ = 40°
ϕ =

CONFIGURATION: XT

REMARKS:

INTEGRATOR COUNT: 3318
POLARIZATION: Eϕ [ ] Eθ [✓] OTHER:
PLOTTED IN: RELATIVE POWER db
TRANSMISSION DISTANCE: 500 ft.
OBSERVER: FAGOS DATE: 14-6-67

MAC FORM 12 (2 MAY 66)

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DATE	**MCDONNELL** ST. LOUIS, MISSOURI	PAGE	99
REVISED		REPORT	TR 058-ADA.03
REVISED		MODEL	195B

ANTENNA: NOSE STUB

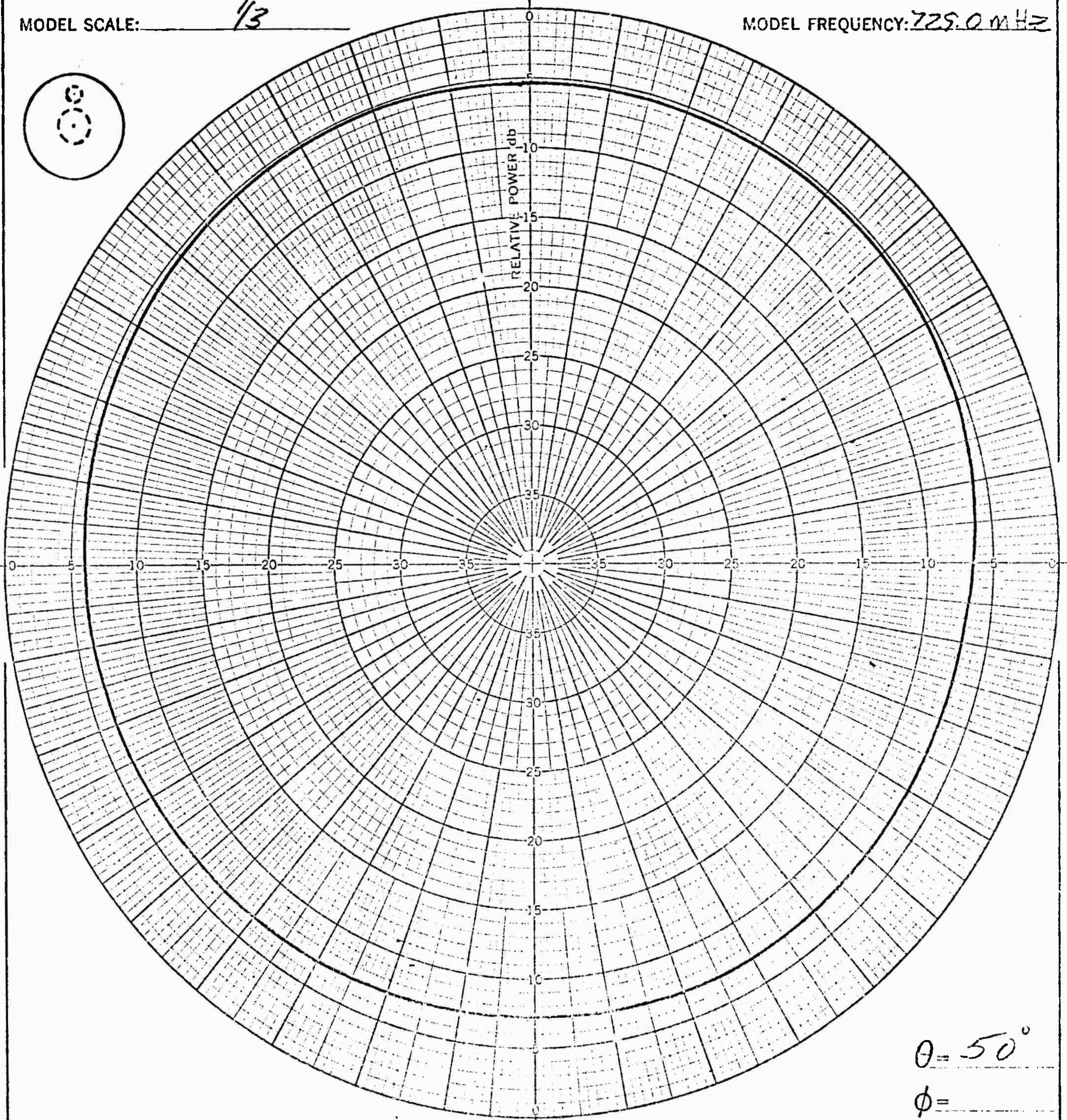
VEHICLE: GEMINI B

ANTENNA LOCATION: NOSE

FULL SCALE FREQUENCY: 243.0 mHz

MODEL SCALE: 1/3

MODEL FREQUENCY: 729.0 mHz



$\theta = 50°$

$\phi =$

CONFIGURATION: XL

REMARKS:

INTEGRATOR COUNT: 4855

POLARIZATION: Eϕ [ ] Eθ [✓] OTHER:

PLOTTED IN: RELATIVE POWER db

TRANSMISSION DISTANCE: 500 ft

OBSERVER: EMECS

DATE: 4-5-67

MAC 221YL 17 MAY 63

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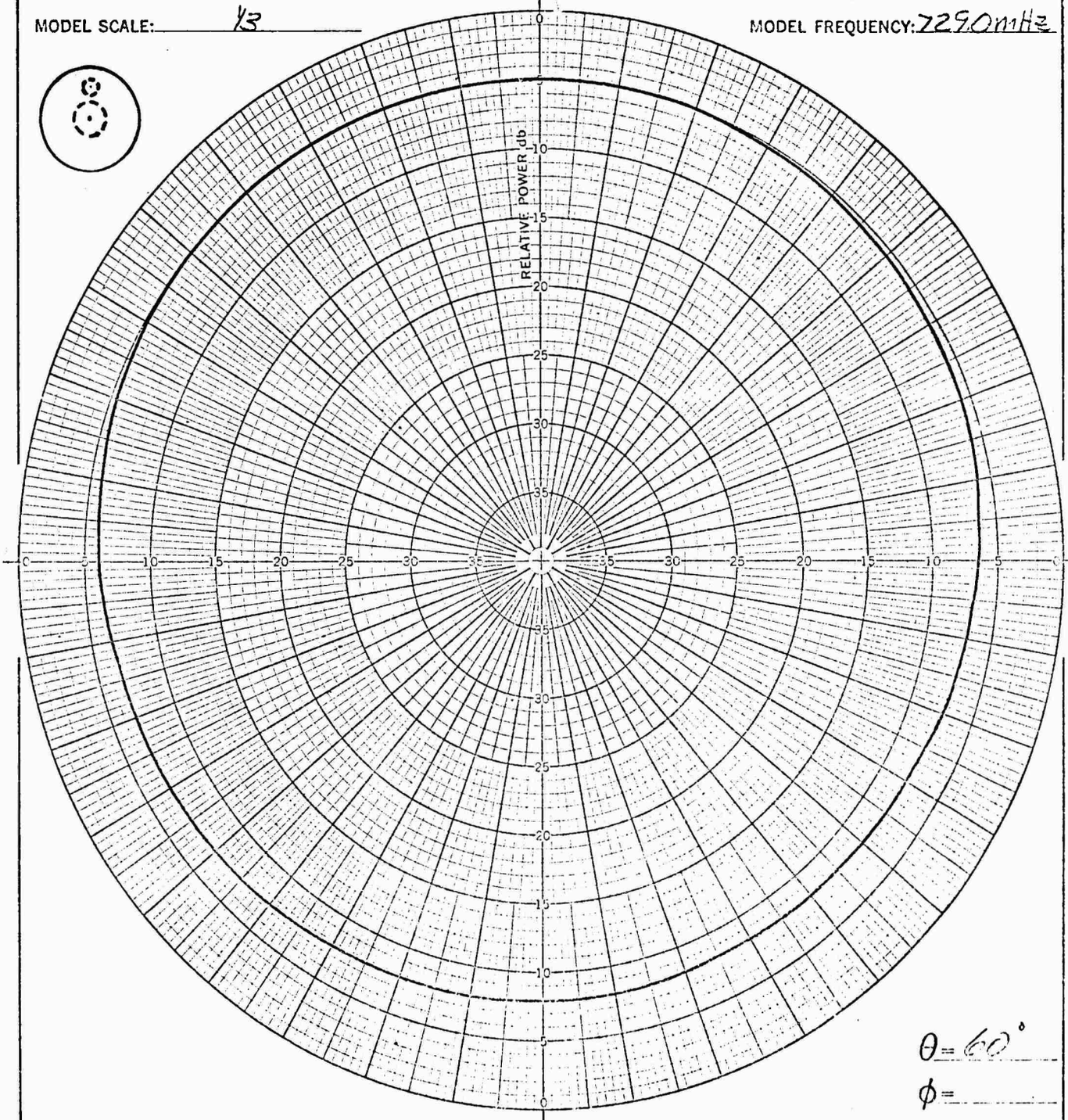
PAGE 100
REPORT TR 058-ADA.03
MODEL 195B

ANTENNA: NOSE STUR
ANTENNA LOCATION: NOSE
MODEL SCALE: 1/3

VEHICLE: GEMINI B
FULL SCALE FREQUENCY: 243.0mHz
MODEL FREQUENCY: 729.0mHz



θ = 60°
ϕ =

CONFIGURATION: XL

REMARKS:

INTEGRATOR COUNT: 4712
POLARIZATION: Eϕ ☐ Eθ ☑ OTHER:
PLOTTED IN: RELATIVE POWER db
TRANSMISSION DISTANCE: 500'
OBSERVER: EM & CS DATE: 11-6-67

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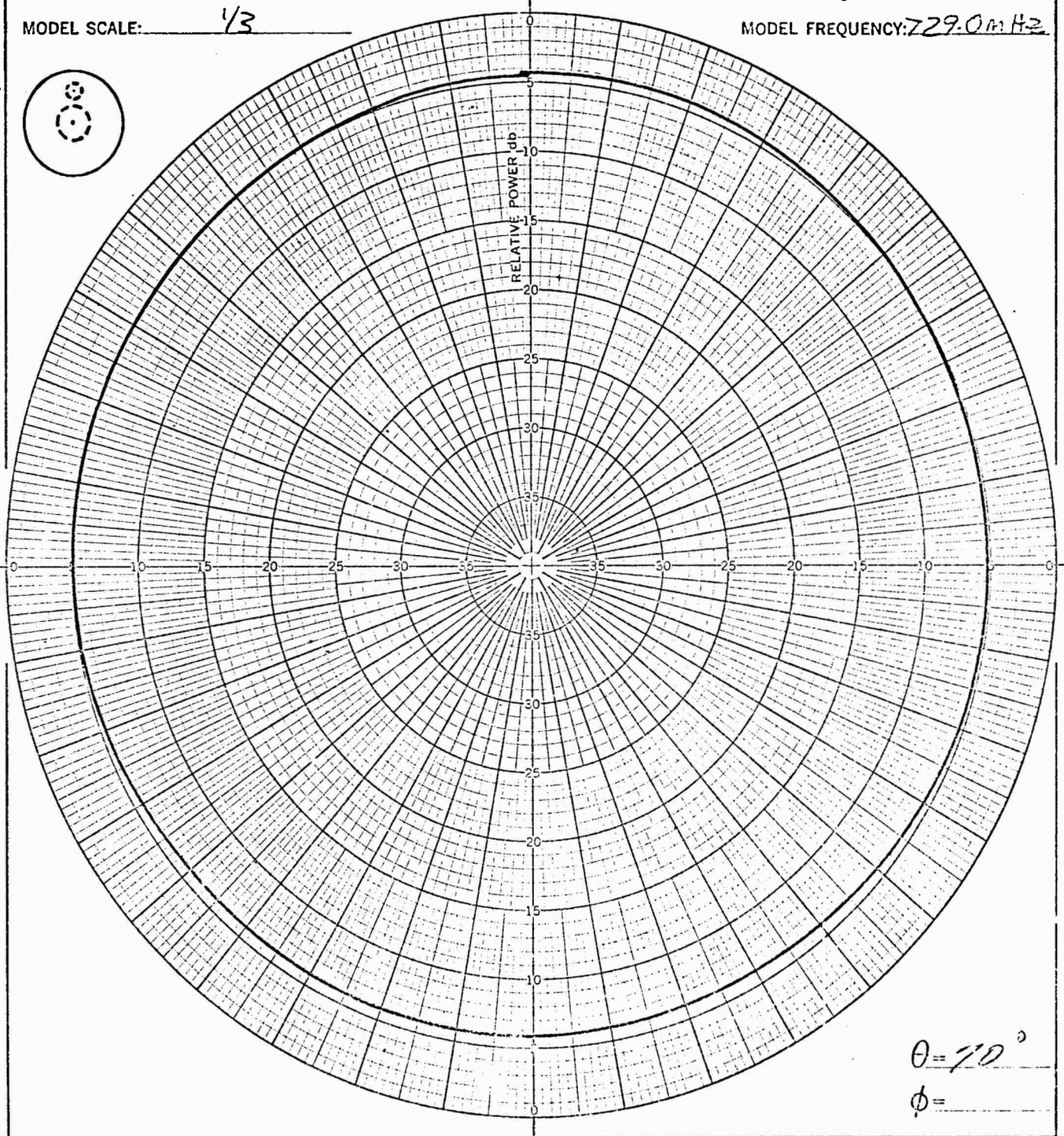
PAGE 101
REPORT TR 058-ADA.03
MODEL 195B

ANTENNA: NOSE STUB
ANTENNA LOCATION: NOSE
MODEL SCALE: 1/3

VEHICLE: GEMINI B
FULL SCALE FREQUENCY: 245.0 mHz
MODEL FREQUENCY: 729.0 mHz



CONFIGURATION: XL

REMARKS:

INTEGRATOR COUNT: 5925
POLARIZATION: Eϕ [ ] Eθ [✓] OTHER:
PLOTTED IN: RELATIVE POWER db
TRANSMISSION DISTANCE: 520 ft
OBSERVER: EM? DATE: 12-6-67

MAC 231YL (7 MAY 64)

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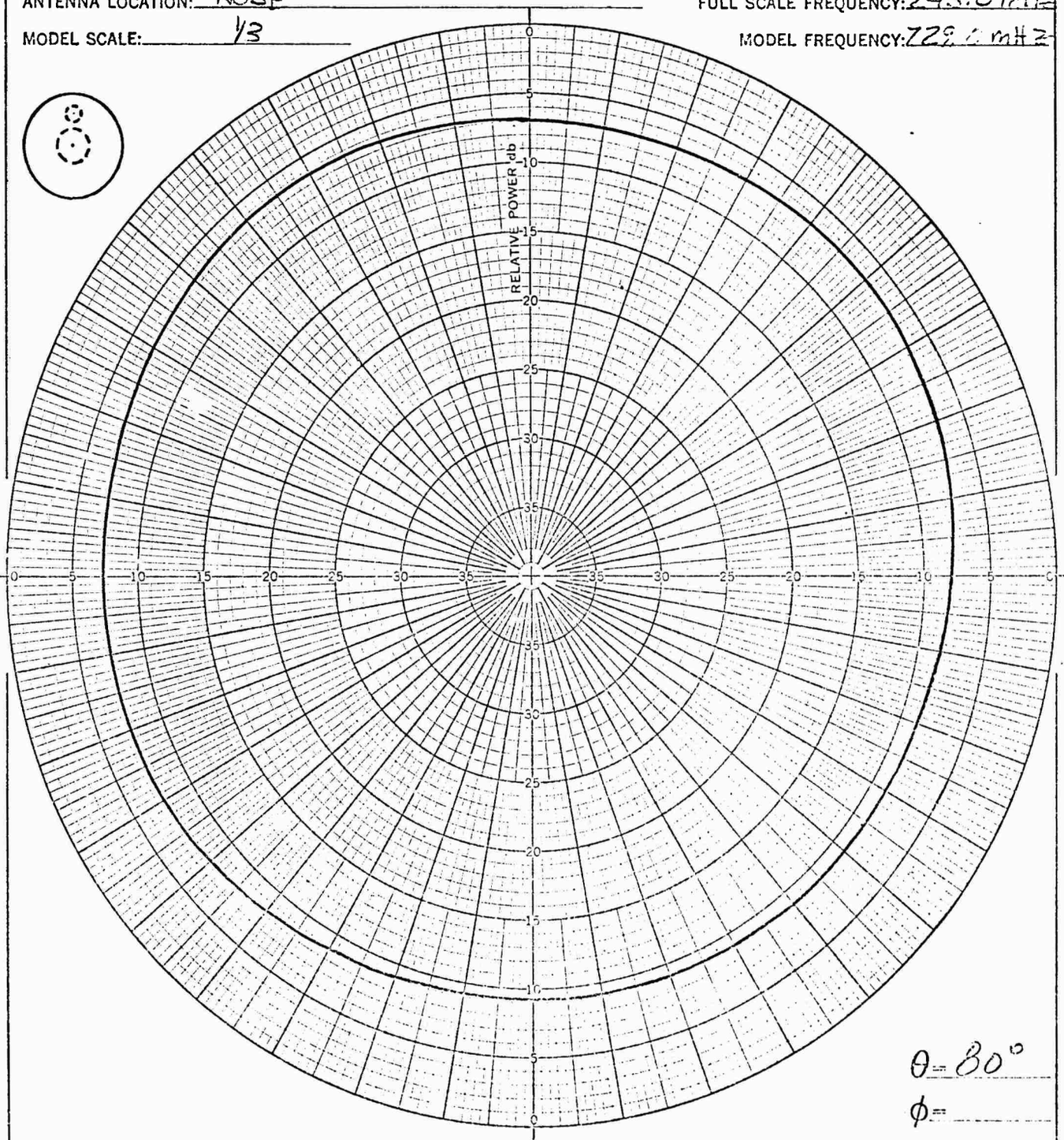
PAGE 102
REPORT TR 058-ADA.03
MODEL 195B

ANTENNA: NOSE STUB
ANTENNA LOCATION: NOSE
MODEL SCALE: 1/3

VEHICLE: GEMINI B
FULL SCALE FREQUENCY: 243.0 mHz
MODEL FREQUENCY: 729.0 mHz



θ = 80°
ϕ =

CONFIGURATION: XL

REMARKS:

INTEGRATOR COUNT: 9535
POLARIZATION: Eϕ [ ] Eθ [✓] OTHER:
PLOTTED IN: RELATIVE POWER db
TRANSMISSION DISTANCE: 50 ft
OBSERVER: EM & CS DATE: 11-6-67

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ST. LOUIS, MISSOURI

PAGE 103

REPORT TR 058-ADA.03

MODEL 195B

ANTENNA: NOSE STUB

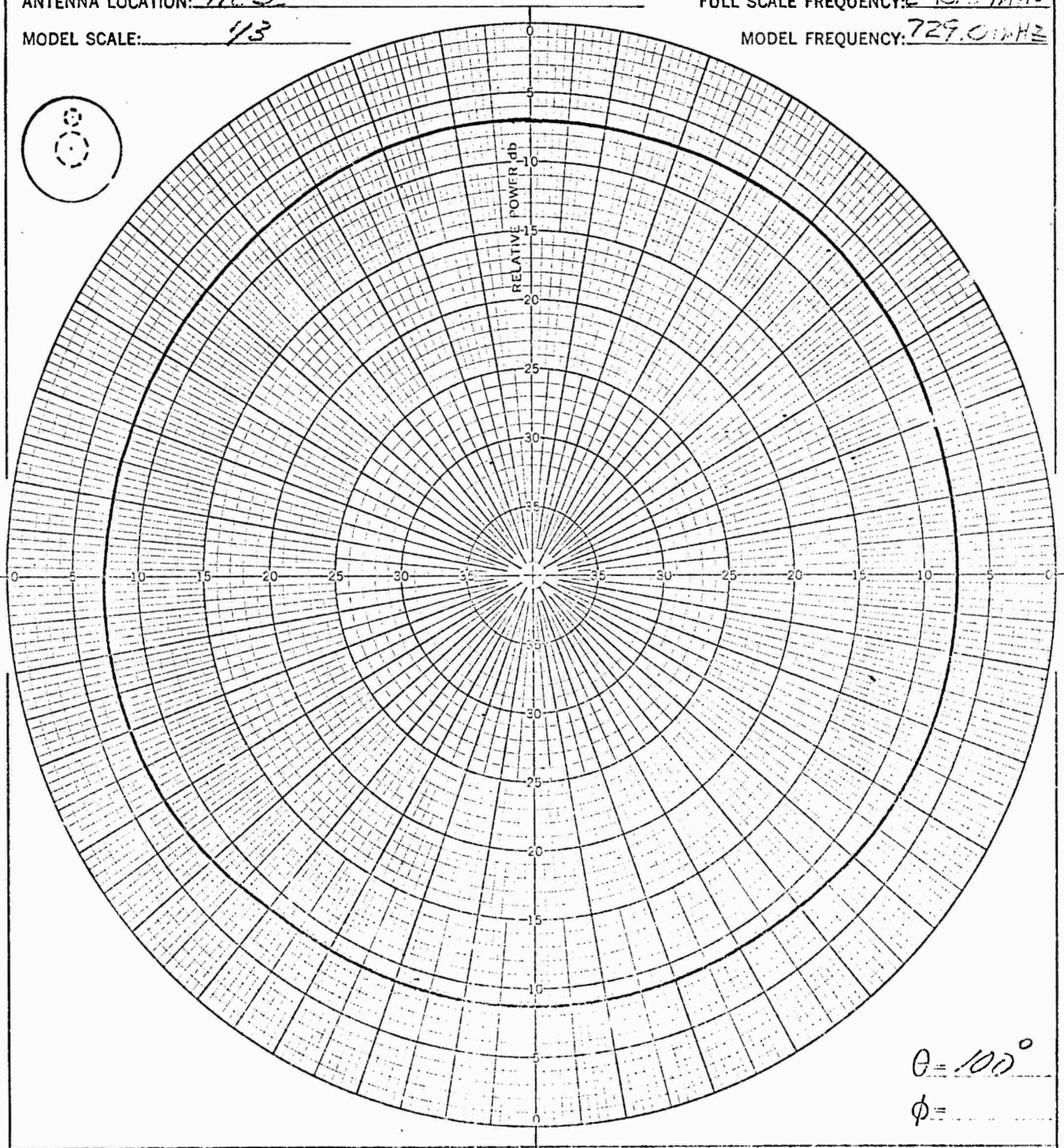
ANTENNA LOCATION: NOSE

MODEL SCALE: 1/3

VEHICLE: GEMINI B

FULL SCALE FREQUENCY: 2430 mHz

MODEL FREQUENCY: 729.0 mHz



$\theta = 100^\circ$

$\phi =$

CONFIGURATION: VT

REMARKS:

INTEGRATOR COUNT: 3481

POLARIZATION: Eϕ [ ] Eθ [✓] OTHER:

PLOTTED IN: RELATIVE POWER db

TRANSMISSION DISTANCE: 500 ft

OBSERVER: [illegible] DATE: [illegible]

MAC 731YL (7 MAY 64)

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MCDONNELL
ST. LOUIS, MISSOURI

PAGE 104

REPORT TR 058-ADA.03

MODEL 195B

ANTENNA: NOSE STUB

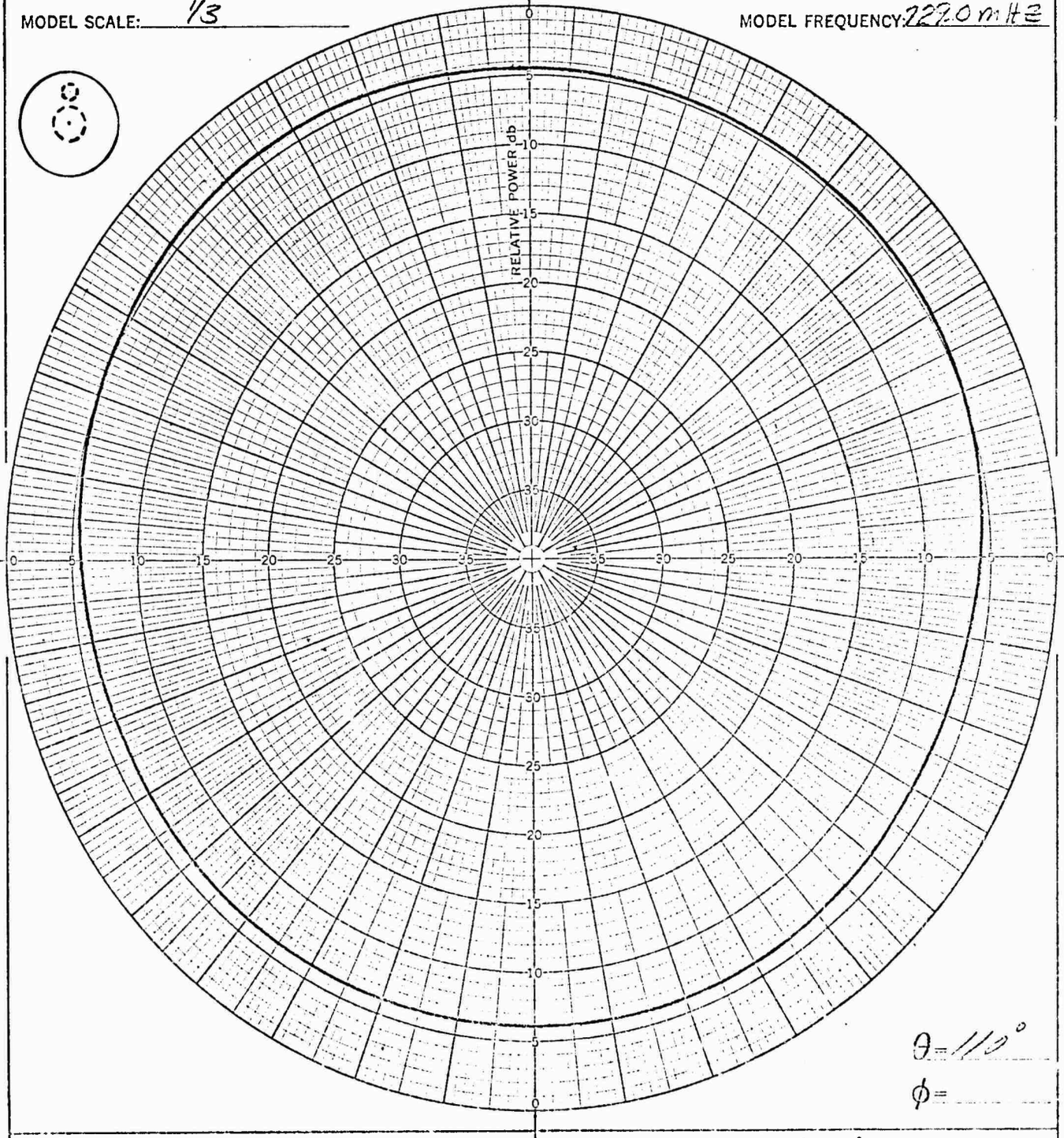
ANTENNA LOCATION: NOSE

MODEL SCALE: 1/3

VEHICLE: GEMINI B

FULL SCALE FREQUENCY: 243.0 mHz

MODEL FREQUENCY: 222.0 mHz



θ = 110°

ϕ = _____

CONFIGURATION: ST

INTEGRATOR COUNT: 5874

POLARIZATION: Eϕ [ ] Eθ [✓] OTHER:

PLOTTED IN: RELATIVE POWER db

REMARKS: _____

TRANSMISSION DISTANCE: 500 ft

OBSERVER: [illegible] CS DATE: [illegible]

MAC 2331L (7 MAY 64)

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PAGE 105

REPORT TR 058-ADA.03

MODEL 195B

ANTENNA: NOSE STUB

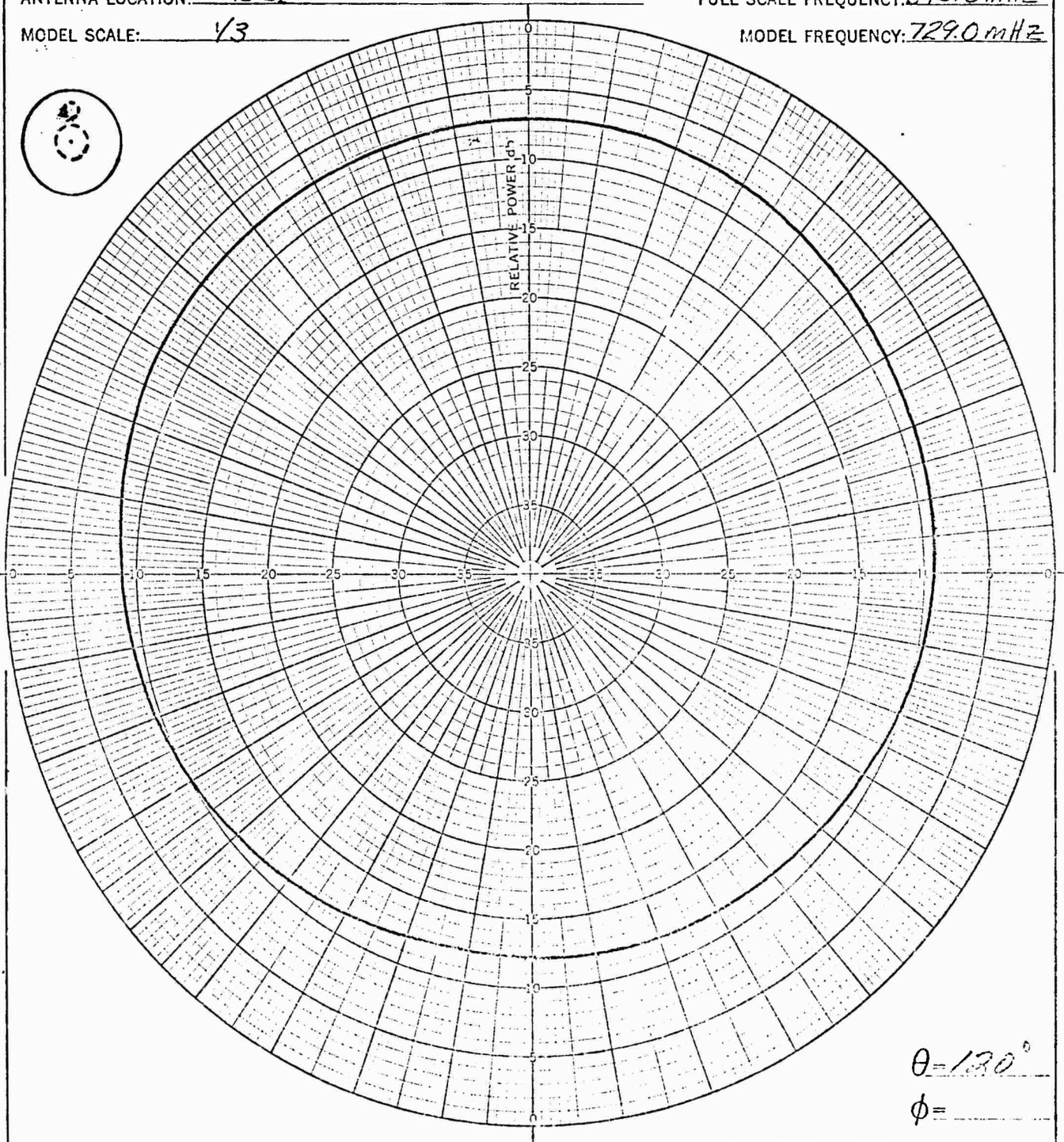
ANTENNA LOCATION: NOSE

MODEL SCALE: 1/3

VEHICLE: GEMINI B

FULL SCALE FREQUENCY: 243.0 mHz

MODEL FREQUENCY: 729.0 mHz



θ = 180°

ϕ =

CONFIGURAT ON: XL

INTEGRATOR COUNT: 3597

POLARIZATION: Eϕ [ ] Eθ [✓] OTHER:

PLOTTED IN: RELATIVE POWER db

REMARKS:

TRANSMISSION DISTANCE: 500 Ft

OBSERVER: EMG & S DATE: 12-[illegible]

MAC 7317L (7 MAY 64)

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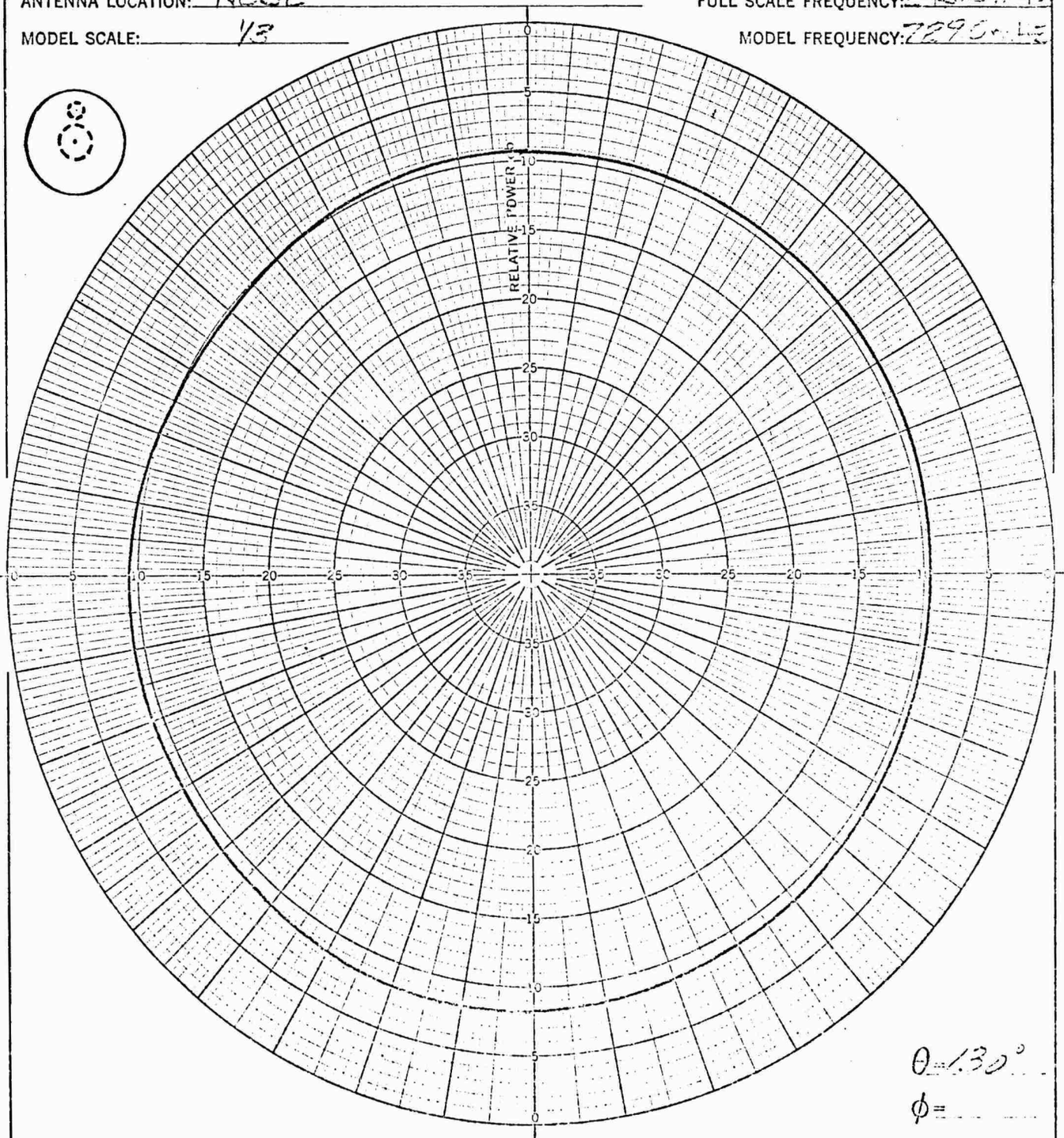
ST. LOUIS, MISSOURI

PAGE 106
REPORT TR 058-ADA.03
MODEL 195B

ANTENNA: NOSE STUB
ANTENNA LOCATION: NOSE
MODEL SCALE: 1/3

VEHICLE: GEMINI B
FULL SCALE FREQUENCY: 243.0 MHz
MODEL FREQUENCY: 2295 MHz



θ=130°
ϕ=

CONFIGURATION: VL

REMARKS:

INTEGRATOR COUNT: 2.508
POLARIZATION: Eϕ [ ] Eθ [X] OTHER:
PLOTTED IN: RELATIVE POWER db
TRANSMISSION DISTANCE:
OBSERVER: DATE:

DATE

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MCDONNELL
ST. LOUIS, MISSOURI

PAGE 107

REPORT TR 058-ADA.03

MODEL 195B

ANTENNA: NOSE STUB

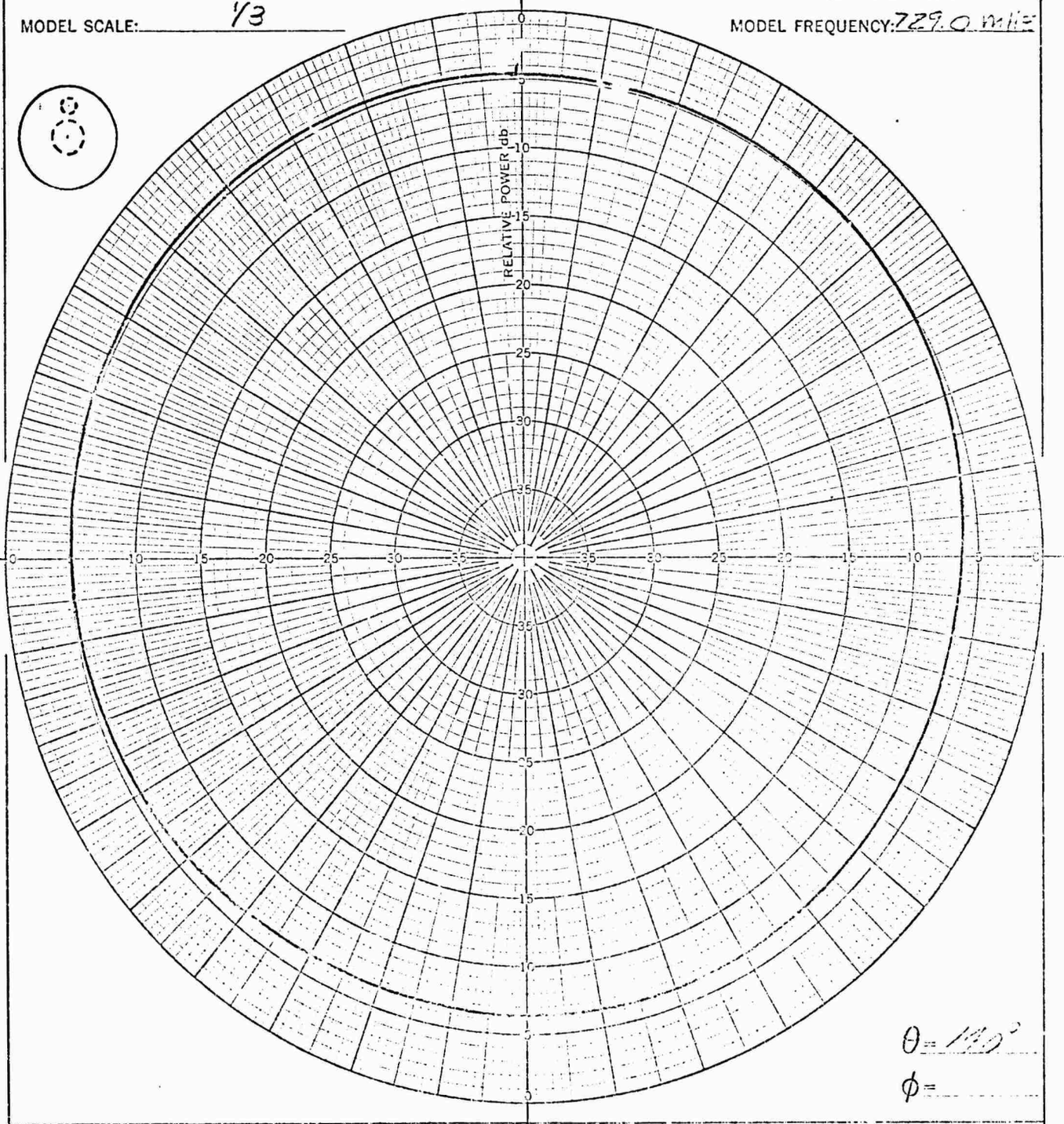
ANTENNA LOCATION: NOSE

MODEL SCALE: 1/3

VEHICLE: GEMINI B

FULL SCALE FREQUENCY: 243.0 mHz

MODEL FREQUENCY: 729.0 mHz



θ = 180°

ϕ =

CONFIGURATION: XT

REMARKS:

INTEGRATOR COUNT: 5810

POLARIZATION: Eϕ [ ] Eθ [✓] OTHER:

PLOTTED IN: RELATIVE POWER db

TRANSMISSION DISTANCE: 500 ft

OBSERVER: EM & CS DATE: 12-6-67

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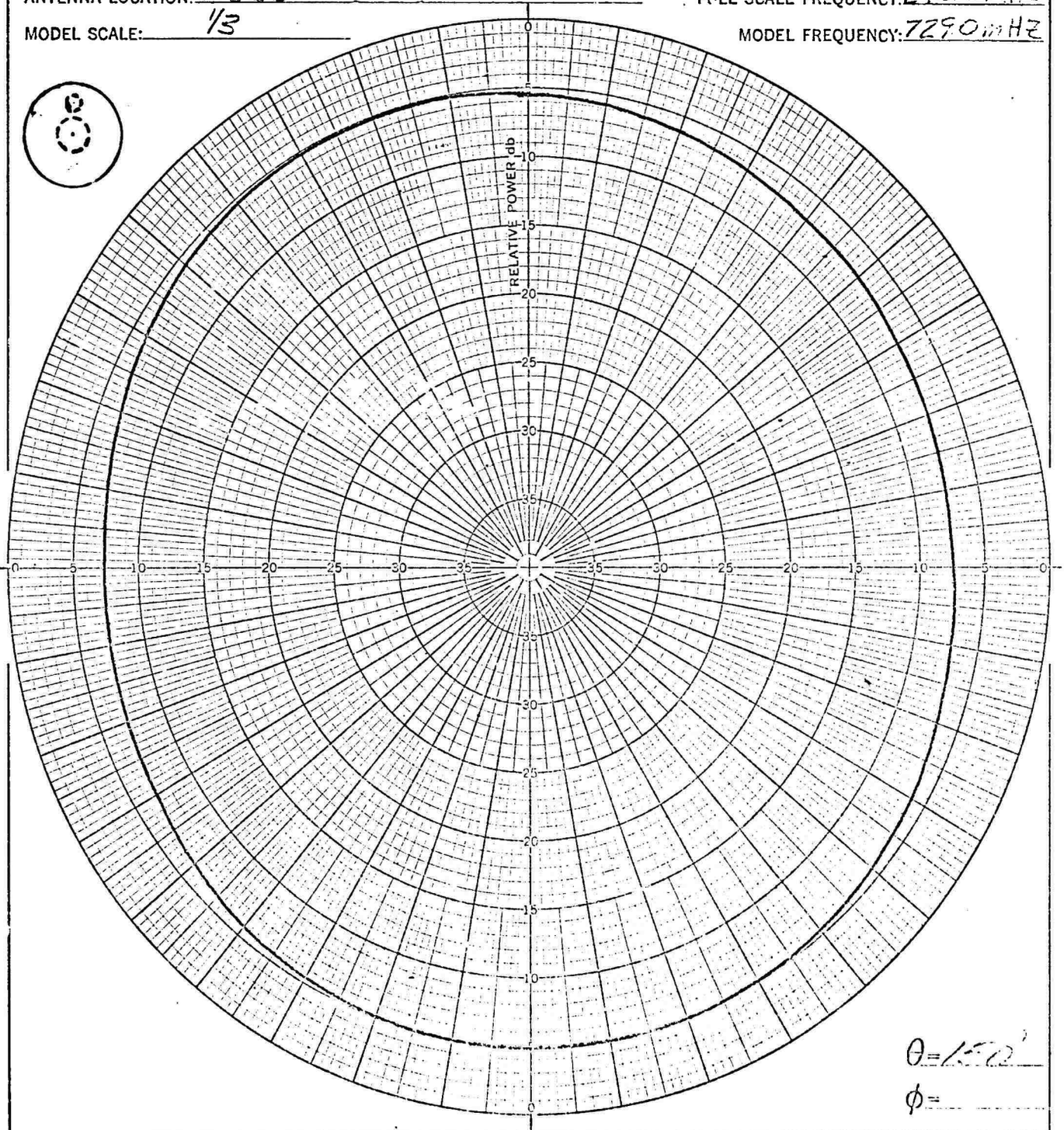
MCDONNELL
ST. LOUIS, MISSOURI

PAGE 108
REPORT TR 058-ADA.03
MODEL 195B

ANTENNA: NOSE STUB
ANTENNA LOCATION: NOSE
MODEL SCALE: 1/3

VEHICLE: GEMINI B
FULL SCALE FREQUENCY: 243.0 mHz
MODEL FREQUENCY: 729.0 mHz



θ = 45°
φ =

CONFIGURATION: XI

INTEGRATOR COUNT: 5062

POLARIZATION: Eφ [ ] Eθ [✓] OTHER:

PLOTTED IN: RELATIVE POWER db

REMARKS:

TRANSMISSION DISTANCE: 500 ft

OBSERVER: [illegible] DATE: 5-6-[illegible]

MAC 221YL (7 MAY 64)

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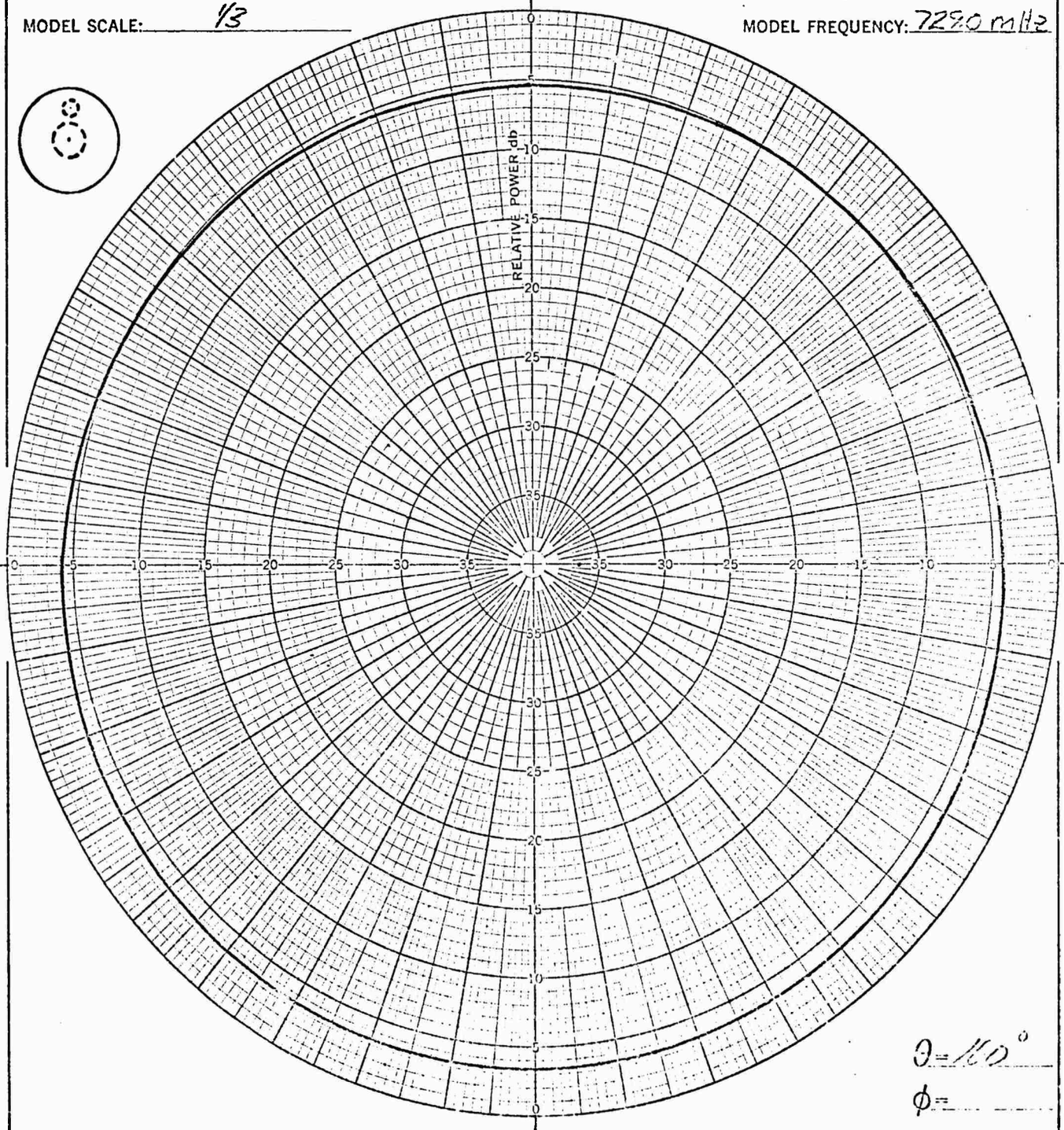
MCDONNELL
ST. LOUIS, MISSOURI

PAGE 109
REPORT TR 058-ADA.03
MODEL 195B

ANTENNA: NOSE STUB
ANTENNA LOCATION: NOSE
MODEL SCALE: 1/3

VEHICLE: GEMINI B
FULL SCALE FREQUENCY: 2430 mHz
MODEL FREQUENCY: 7290 mHz



θ = 180°
ϕ =

CONFIGURATION: XI

INTEGRATOR COUNT: 7-134

POLARIZATION: Eϕ [ ] Eθ [✓] OTHER:

PLOTTED IN: RELATIVE POWER db

REMARKS:

TRANSMISSION DISTANCE: 500 ft.

OBSERVER: EM & CS DATE: 12-1-67

MAC 231YL (7 MAY 64)

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MCDONNELL
ST. LOUIS, MISSOURI

PAGE 110

REPORT TR 058-ADA.03

MODEL 195B

ANTENNA: NOSE STUB

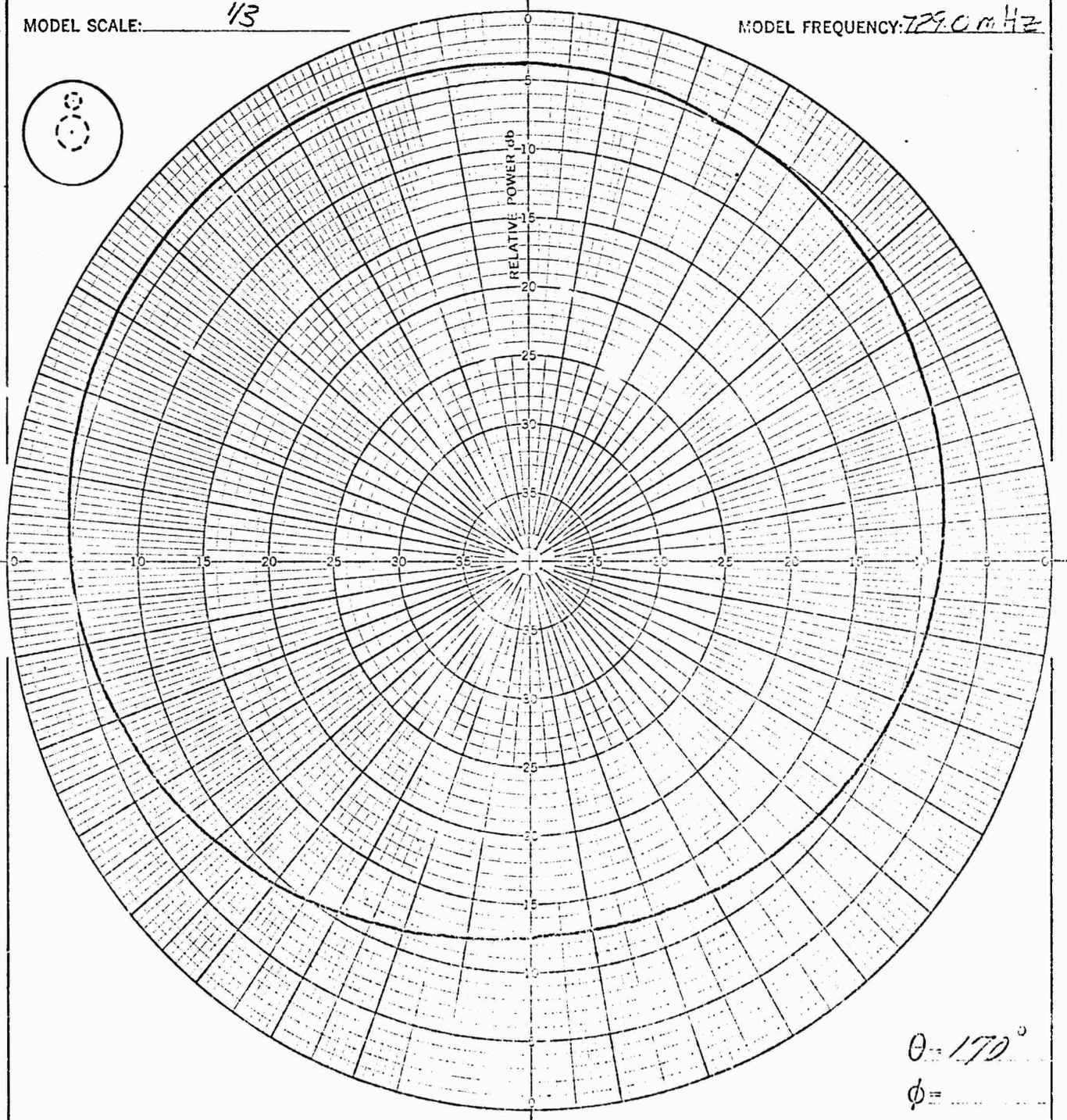
ANTENNA LOCATION: NOSE

MODEL SCALE: 1/3

VEHICLE: GEMINI B

FULL SCALE FREQUENCY: 243.0 mHz

MODEL FREQUENCY: 729.0 mHz



θ = 170°

ϕ =

CONFIGURATION: XI

INTEGRATOR COUNT: 4676

POLARIZATION: Eϕ [ ] Eθ [✓] OTHER:

PLOTTED IN: RELATIVE POWER db

REMARKS:

TRANSMISSION DISTANCE: 500 ft.

OBSERVER: [illegible] DATE: [illegible]

DATE

REVISED

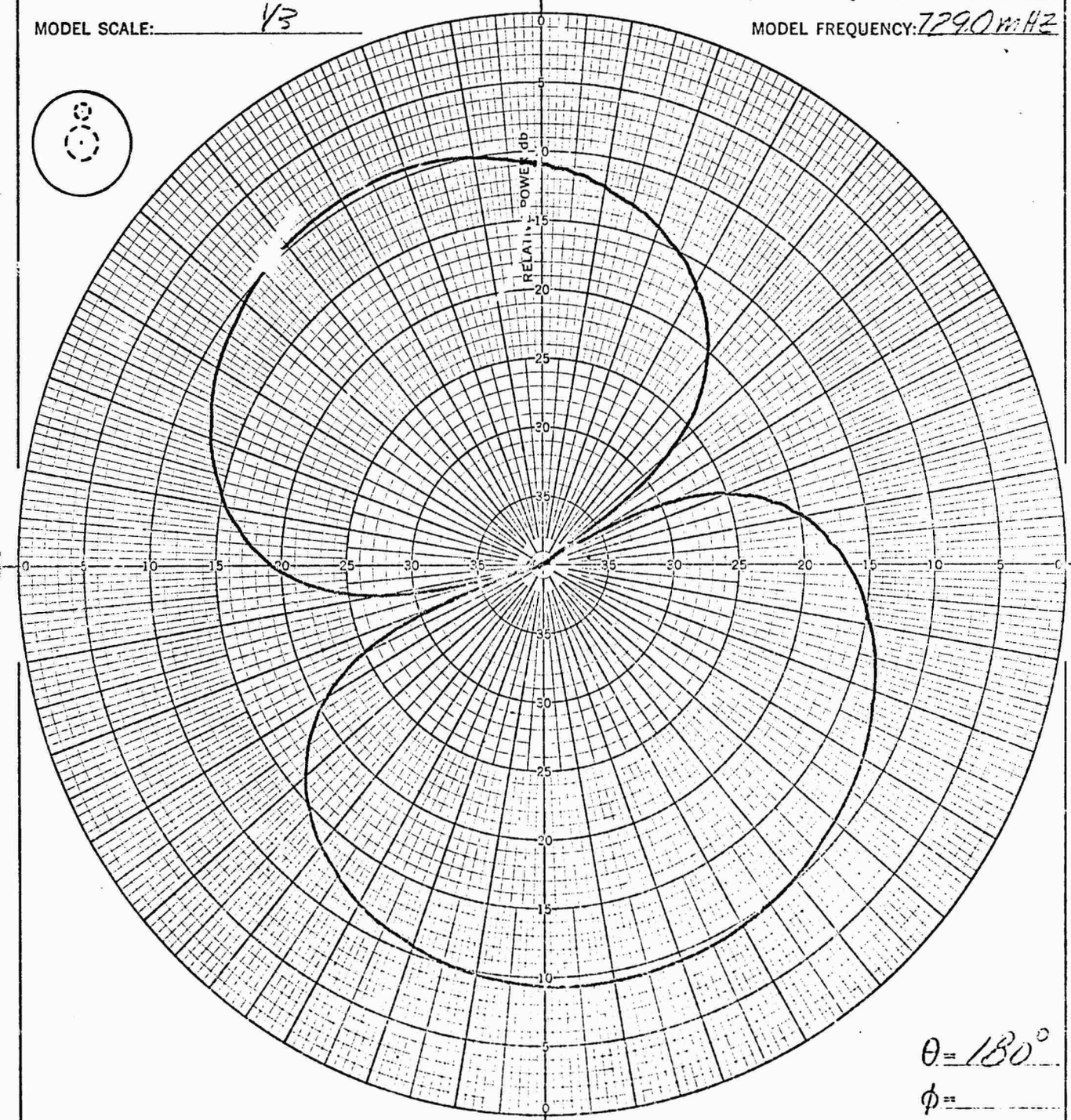
REVISED

MCDONNELL
ST. LOUIS, MISSOURI

PAGE 111
REPORT TR 058-ADA.03
MODEL 195B

ANTENNA: NOSE STUB
ANTENNA LOCATION: NOSE
MODEL SCALE: 1/3

VEHICLE: GEMINI B
FULL SCALE FREQUENCY: 243.0 mHz
MODEL FREQUENCY: 729.0 mHz



θ = 180°
ϕ =

CONFIGURATION: XI

REMARKS:

INTEGRATOR COUNT:
POLARIZATION: Eϕ [ ] Eθ [✓] OTHER:
PLOTTED IN: RELATIVE POWER db
TRANSMISSION DISTANCE: 500 ft
OBSERVER: [illegible] DATE: 12-1-67

MAC 2317L (7 MAY 64)

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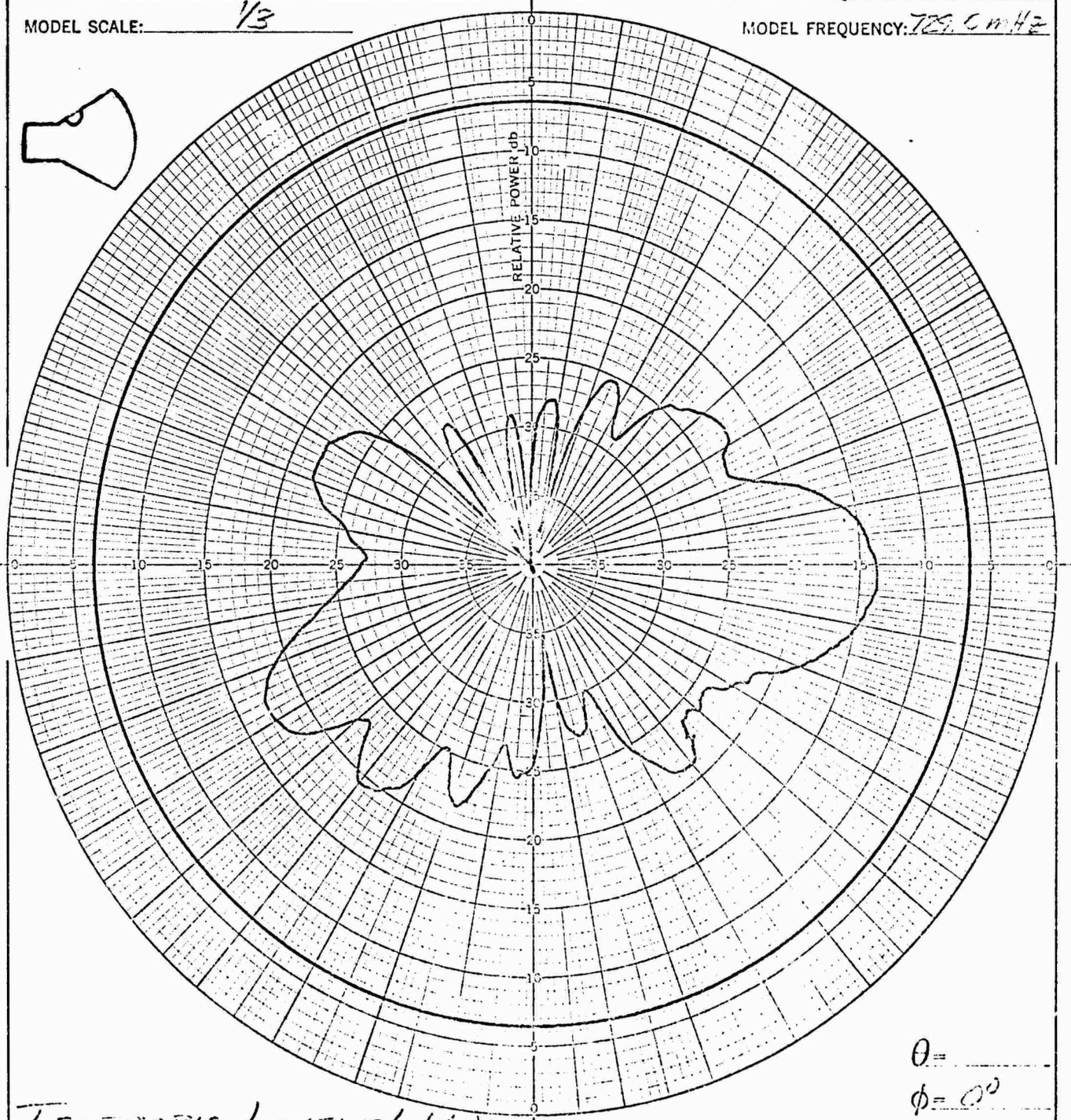
MCDONNELL
ST. LOUIS, MISSOURI

PAGE 112
REPORT TR 058-ADA.03
MODEL 195B

ANTENNA: NOSE STUB
ANTENNA LOCATION: NOSE
MODEL SCALE: 1/3

VEHICLE GEMINI R
FULL SCALE FREQUENCY: 293.0 mHz
MODEL FREQUENCY: 729.0 mHz



ISOTROPIC LEVEL -6.64 db

θ =
φ = 0°

CONFIGURATION: XL

REMARKS: UNCALIBRATED - SHAPE ONLY

INTEGRATOR COUNT:

POLARIZATION: Eφ ✓ Eθ [ ] OTHER:

PLOTTED IN: RELATIVE POWER db

TRANSMISSION DISTANCE: 50 ft.

OBSERVER: FM CC DATE: 5-6-67

DATE

REVISED

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PAGE 113

REPORT TR 058-ADA.03

MODEL 195B

ANTENNA: NOSE STUB

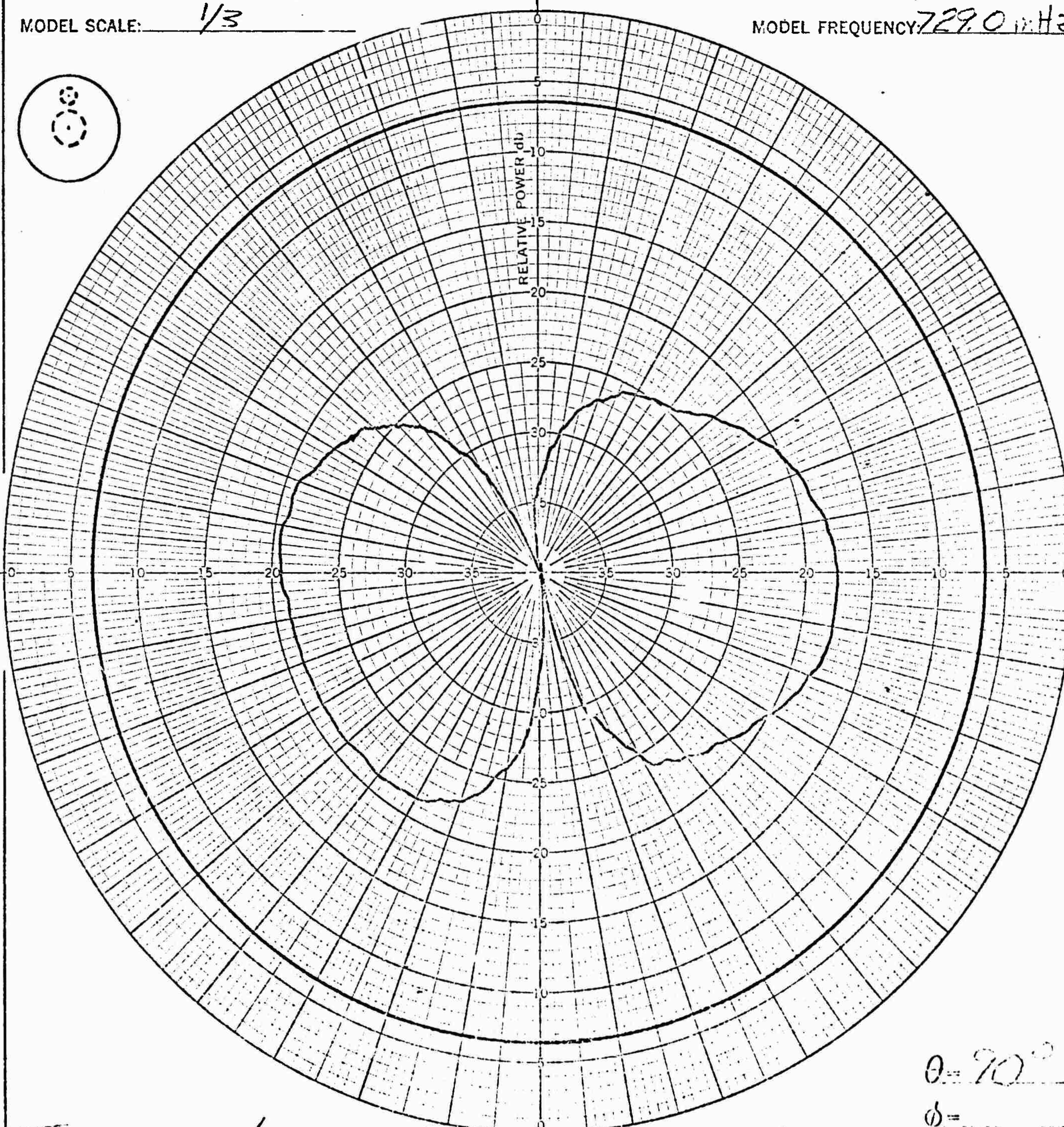
ANTENNA LOCATION: NOSE

MODEL SCALE: 1/3

VEHICLE: GEMINI B

FULL SCALE FREQUENCY: 243.0 mHz

MODEL FREQUENCY: 729.0 mHz



θ = 90°

φ =

[illegible] LEVEL -6.64 db

CONFIGURATION: XI

INTEGRATOR COUNT: 6115

POLARIZATION: Eφ ✓ Eθ OTHER:

PLOTTED IN: RELATIVE POWER db

REMARKS: [illegible]

Eφ = [illegible] VERTICAL

TRANSMISSION DISTANCE: 500 ft

OBSERVER: [illegible]

DATE: 15-[illegible]

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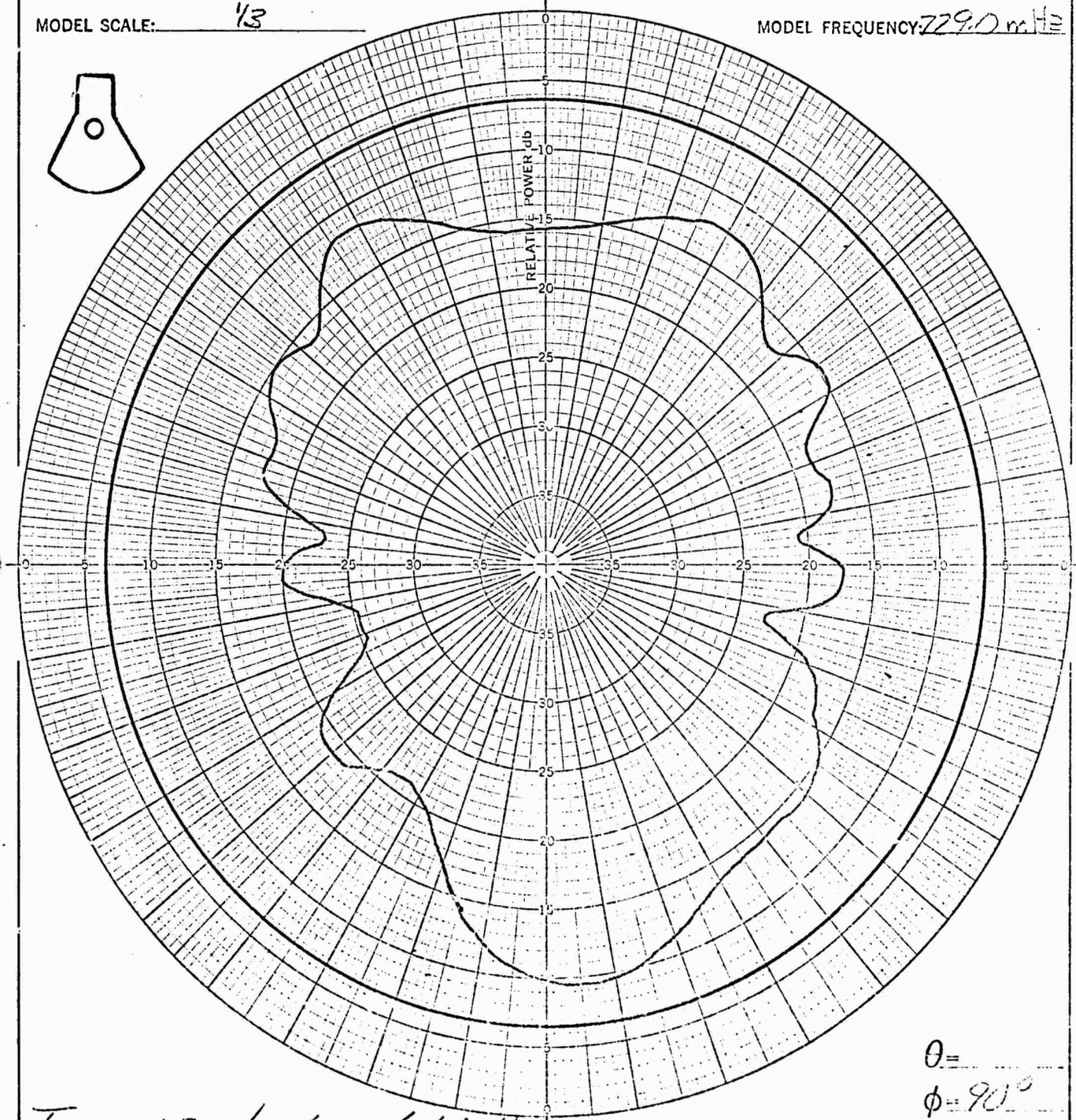
ST. LOUIS, MISSOURI

PAGE 114
REPORT TR 058-ADA.03
MODEL 195B

ANTENNA: NOSE STUB
ANTENNA LOCATION: NOSE
MODEL SCALE: 1/3

VEHICLE: GEMINI B
FULL SCALE FREQUENCY: 243.0 mHz
MODEL FREQUENCY: 729.0 mHz



θ =
φ = 90°

Isotropic Level - 6.64 db

CONFIGURATION: XL

INTEGRATOR COUNT:

POLARIZATION: Eφ [ ] Eθ [ ] OTHER:

PLOTTED IN: RELATIVE POWER db

REMARKS: MOUNTED ON NOSE
Eφ = LONG VERTICAL

TRANSMISSION DISTANCE: 70 ft

OBSERVER: [illegible] DATE: [illegible]

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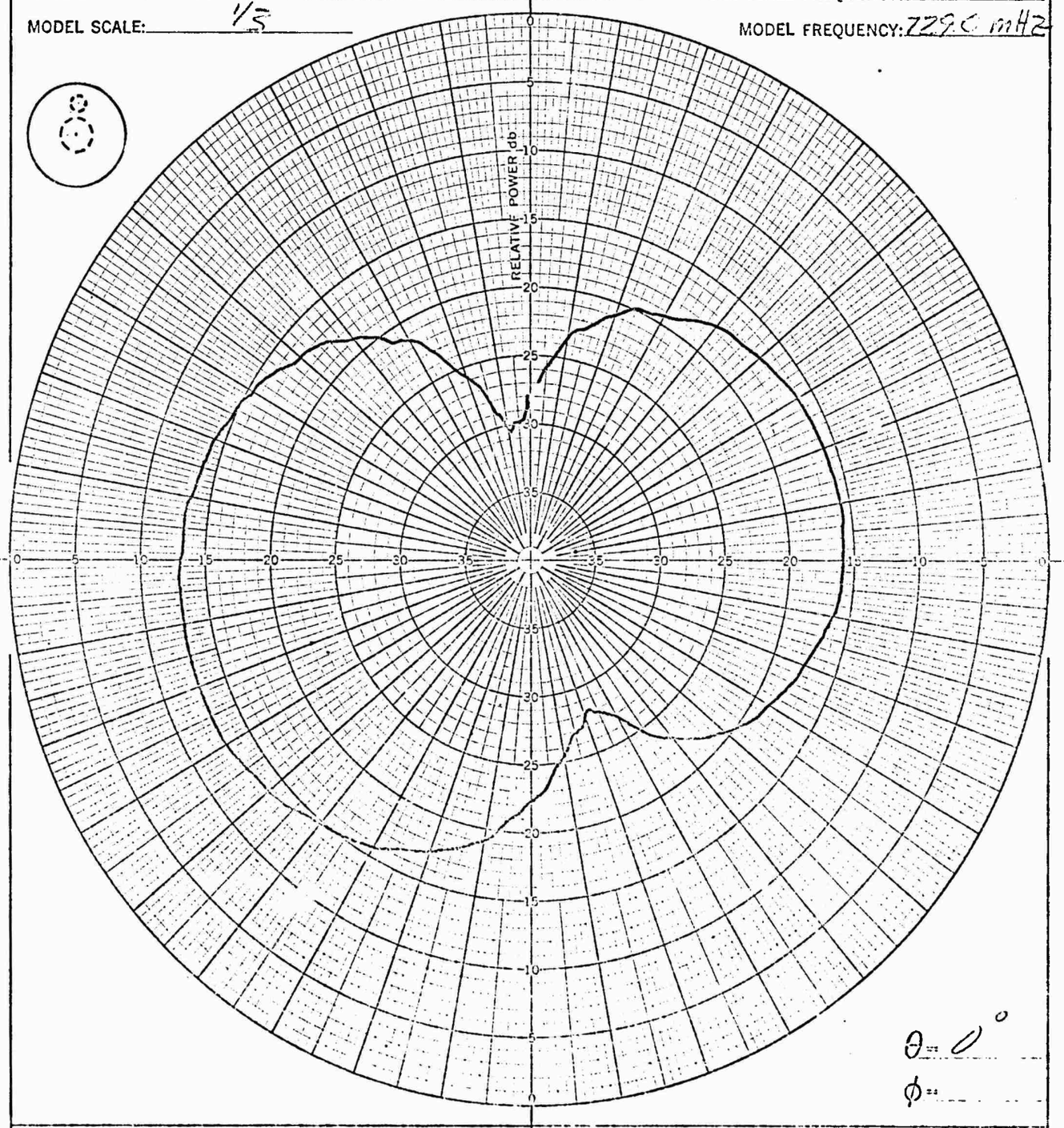
PAGE 115
REPORT TR 058-ADA.03
MODEL 195B

ANTENNA: NOSE STUB
ANTENNA LOCATION: NOSE
MODEL SCALE: 1/5

VEHICLE: GEMINI B
FULL SCALE FREQUENCY: 2190 mHz
MODEL FREQUENCY: 7290 mHz



θ = 0°
φ =

CONFIGURATION: XL

REMARKS:

INTEGRATOR COUNT:
POLARIZATION: Eφ [✓] Eθ [ ] OTHER:
PLOTTED IN: RELATIVE POWER db
TRANSMISSION DISTANCE: 500 ft
OBSERVER: EMCS DATE: 5-6-67

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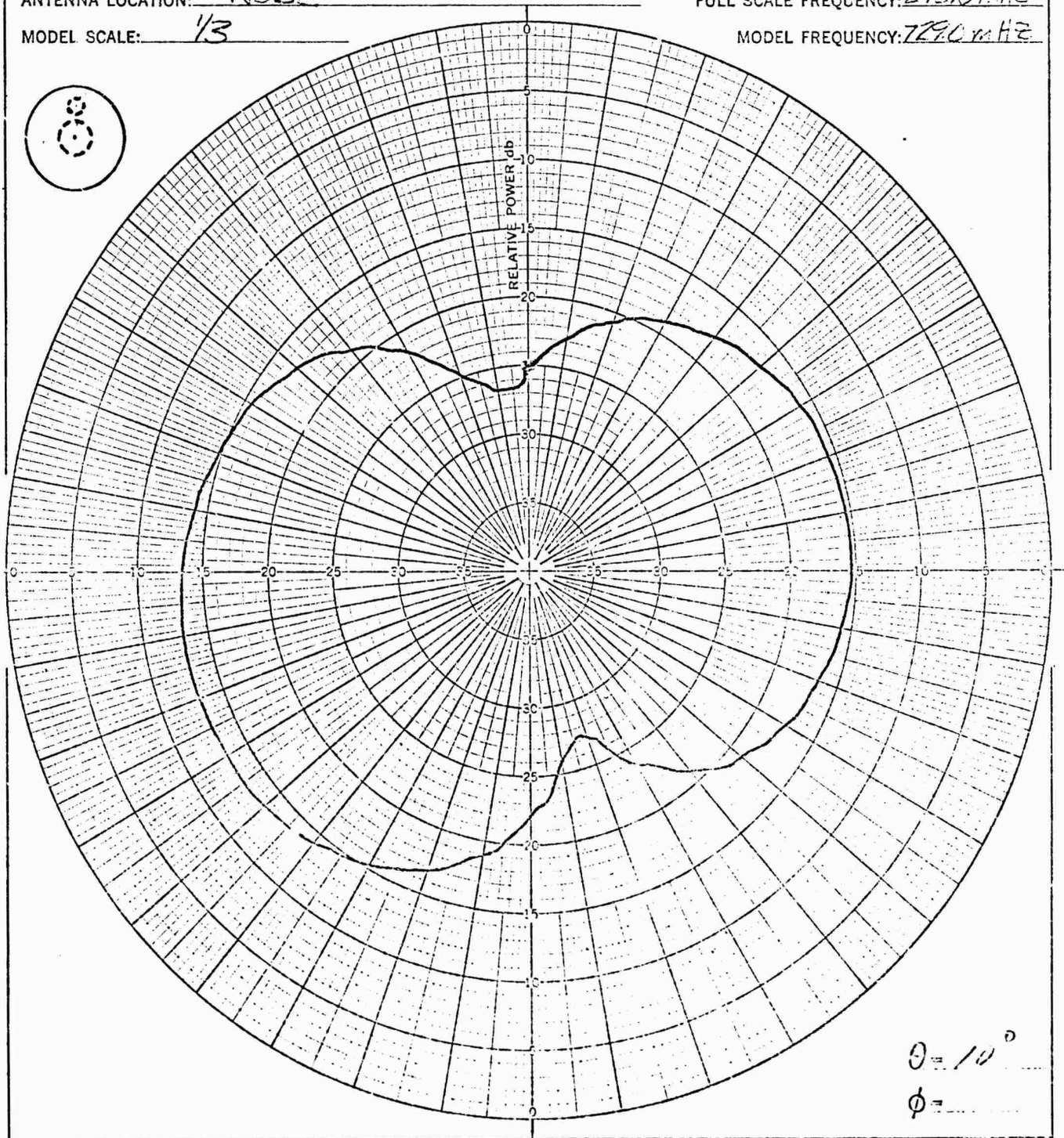
ST. LOUIS, MISSOURI

PAGE 116
REPORT TR 058-ADA.03
MODEL 195B

ANTENNA: NOSE STUB
ANTENNA LOCATION: NOSE
MODEL SCALE: 1/3

VEHICLE: GEMINI B
FULL SCALE FREQUENCY: 243.0 mHz
MODEL FREQUENCY: 729.0 mHz



θ = 10°
φ =

CONFIGURATION: XI

INTEGRATOR COUNT: 0432

POLARIZATION: Eφ ☑ Eθ ☐ OTHER:

PLOTTED IN: RELATIVE POWER db

REMARKS:

TRANSMISSION DISTANCE: 500 ft.

OBSERVER: FM & CS DATE: 15-

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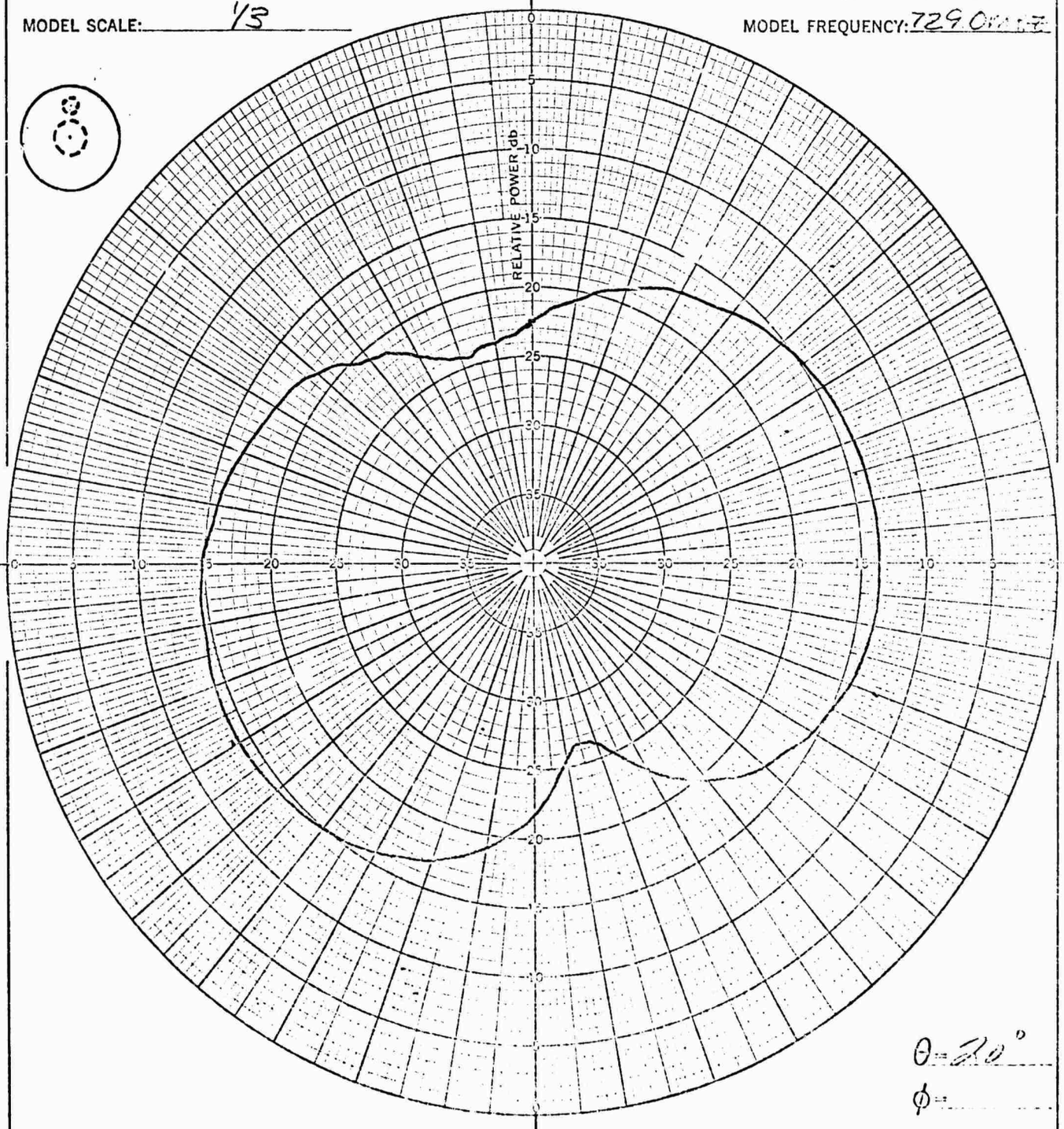
ST. LOUIS, MISSOURI

PAGE 117
REPORT TR 058-ADA.03
MODEL 195B

ANTENNA: NOSE STUB
ANTENNA LOCATION: NOSE
MODEL SCALE: 1/3

VEHICLE: GEMINI B
FULL SCALE FREQUENCY: 243.0 MHz
MODEL FREQUENCY: 729.0 MHz



θ = 20°
φ =

CONFIGURATION: XL

REMARKS:

INTEGRATOR COUNT: 0-162
POLARIZATION: Eφ [✓] Eθ [ ] OTHER:
PLOTTED IN: RELATIVE POWER db
TRANSMISSION DISTANCE: 20 ft
OBSERVER: [illegible] DATE: 15-[illegible]

M/C FORM 17 MAY 63

[illegible]

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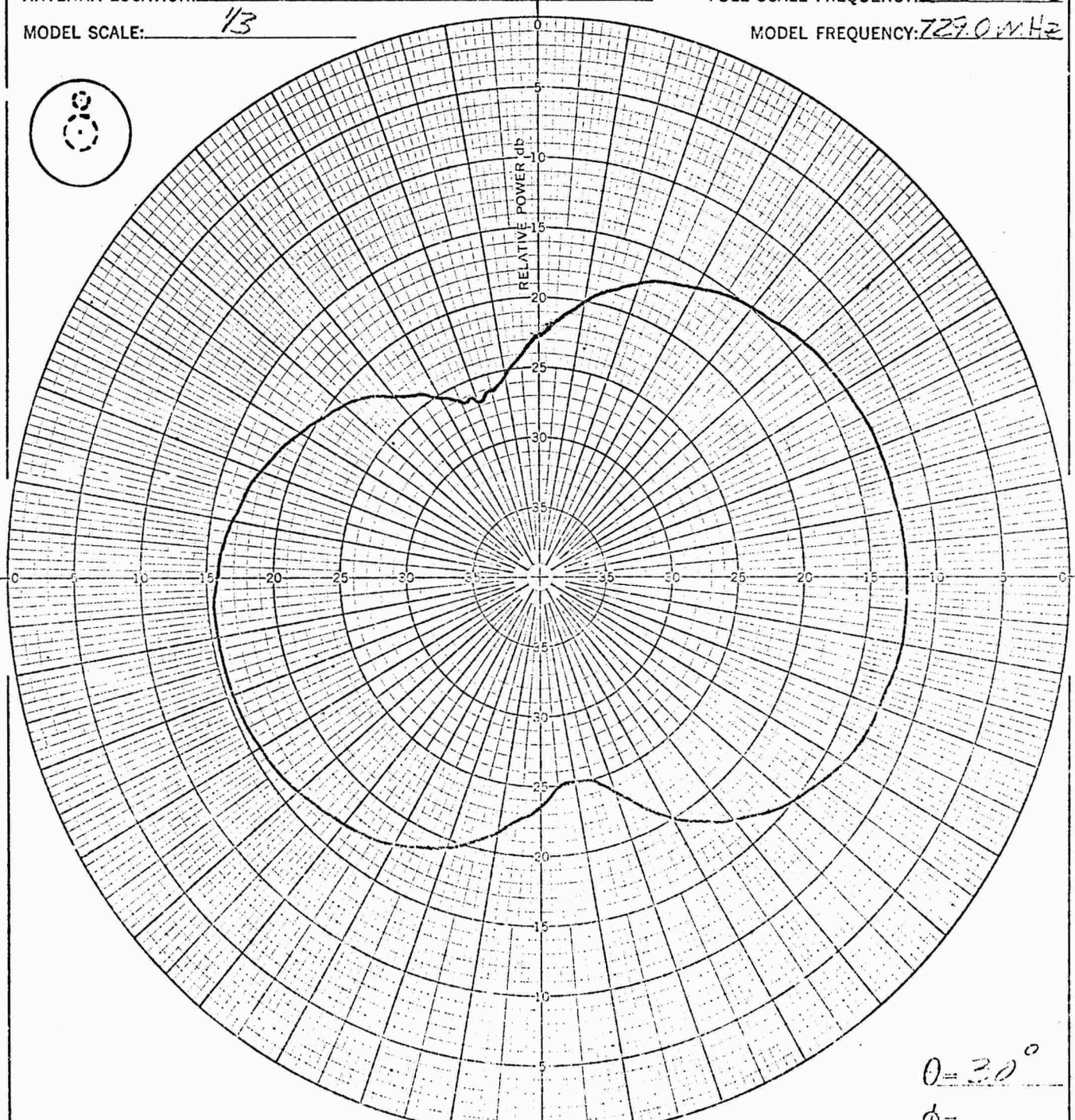
PAGE 118
REPORT TR 058-ADA.03
MODEL 195B

ANTENNA: NOSE STUB
ANTENNA LOCATION: NOSE
MODEL SCALE: 1/3

VEHICLE: GEMINI B
FULL SCALE FREQUENCY: 243.0 mHz
MODEL FREQUENCY: 729.0 MHz



θ = 30°
ϕ =

CONFIGURATION: XI

INTEGRATOR COUNT: 09.85

POLARIZATION: Eϕ [✓] Eθ [ ] OTHER:

PLOTTED IN: RELATIVE POWER db

REMARKS:

TRANSMISSION DISTANCE: 200 ft.

OBSERVER: EMCS DATE: 15 C 7

KAKCO.

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ST. LOUIS, MISSOURI

PAGE 119

REPORT TR 058-ADA.03

MODEL 195B

ANTENNA: NOSE STUB

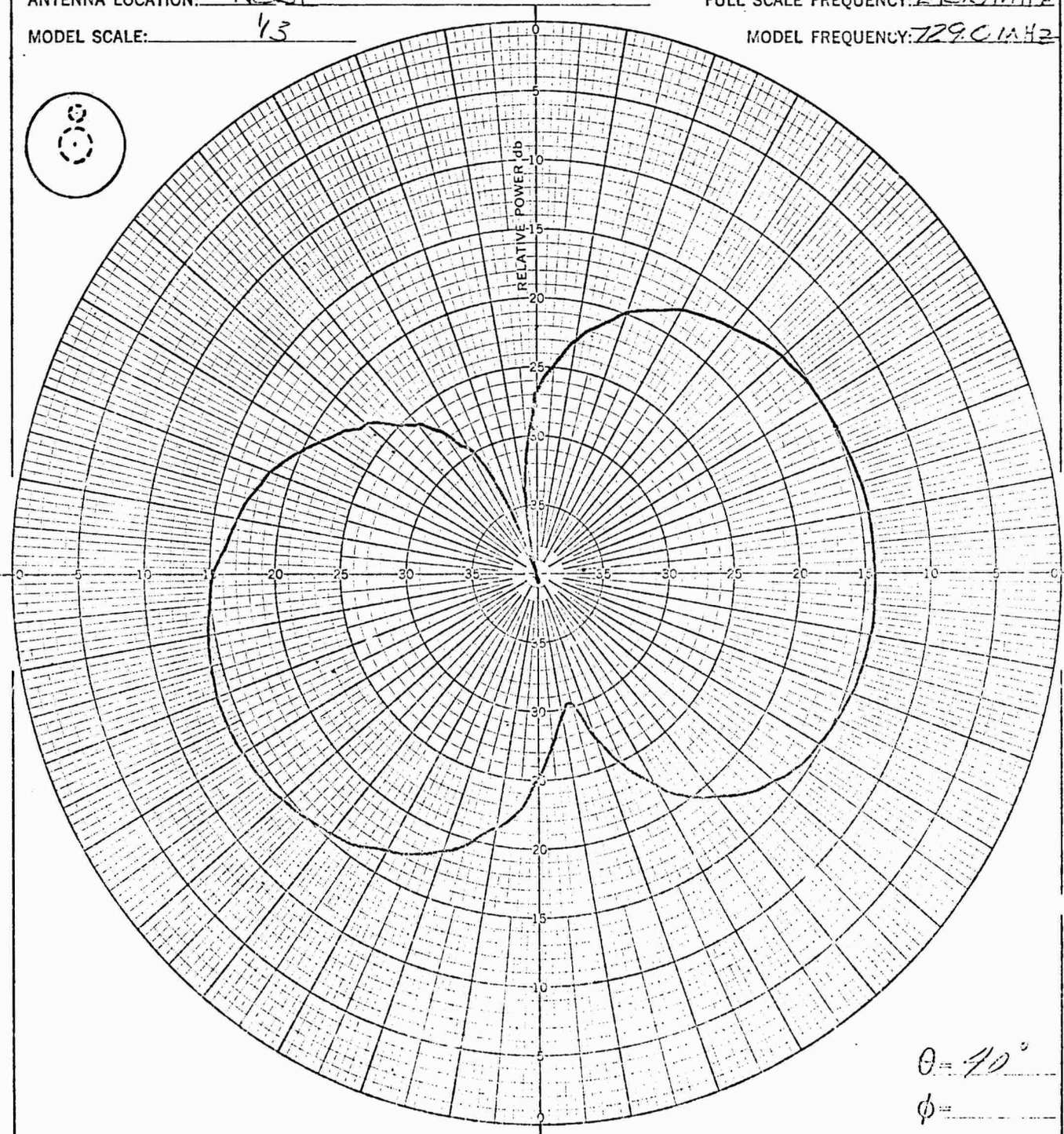
ANTENNA LOCATION: NOSE

MODEL SCALE: 1/3

VEHICLE: GEMINI B

FULL SCALE FREQUENCY: 243.0 MHz

MODEL FREQUENCY: 729.0 MHz



θ = 90°

ϕ =

CONFIGURATION: XL

REMARKS:

INTEGRATOR COUNT: 0285

POLARIZATION: Eϕ [✓] Eθ [ ] OTHER:

PLOTTED IN: RELATIVE POWER db

TRANSMISSION DISTANCE: 500 ft

OBSERVER: [illegible] DATE: [illegible]

MAC 2311L (7 MAY 64)

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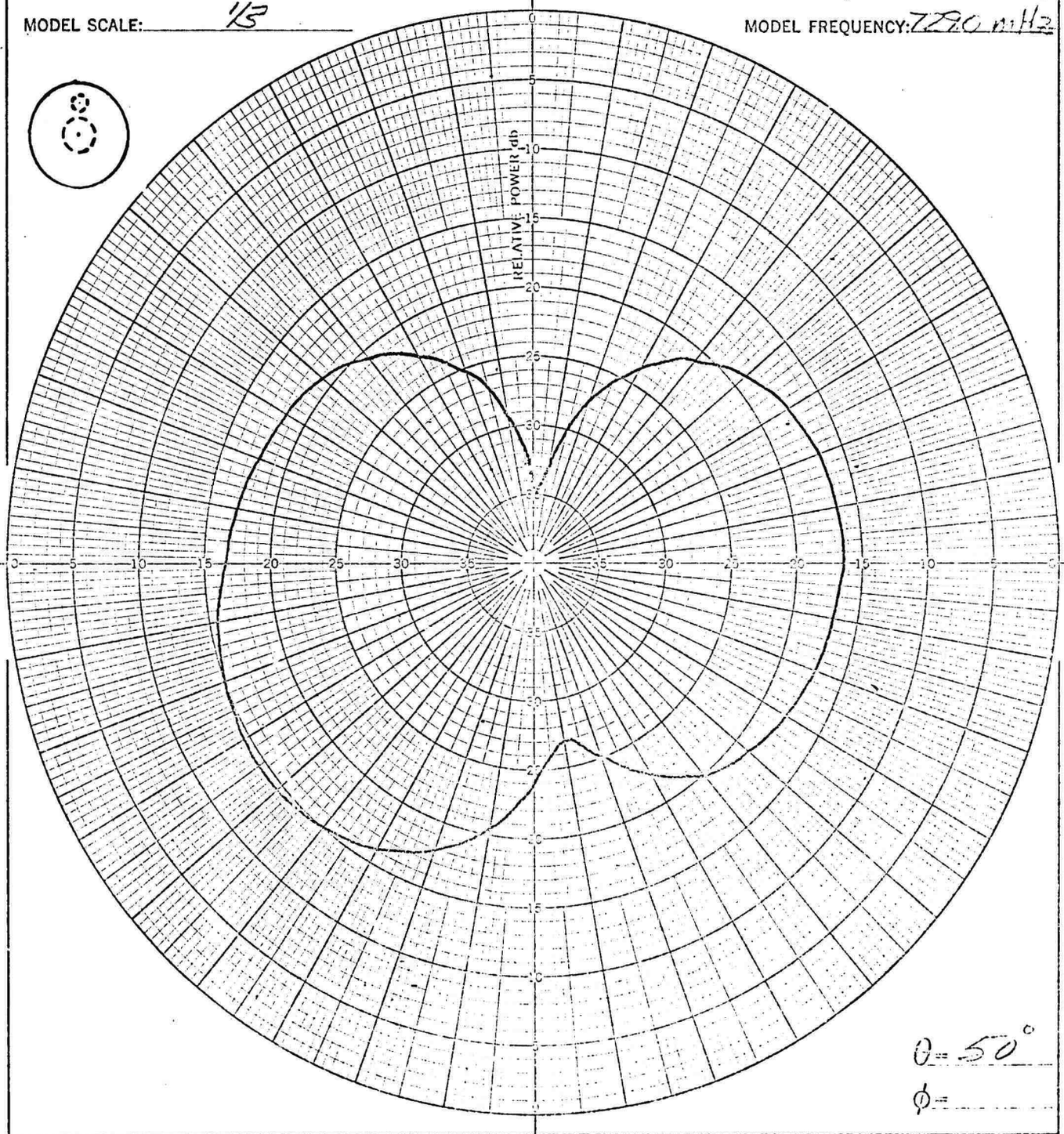
MCDONNELL
ST. LOUIS, MISSOURI

PAGE 120
REPORT TR 058-ADA.03
MODEL 195B

ANTENNA: NOSE STUB
ANTENNA LOCATION: NOSE
MODEL SCALE: 1/3

VEHICLE: GEMINI B
FULL SCALE FREQUENCY: 243.0 mHz
MODEL FREQUENCY: 729.0 mHz



θ = 50°
ϕ =

CONFIGURATION: XL

REMARKS:

INTEGRATOR COUNT: 0311
POLARIZATION: Eϕ [✓] Eθ [ ] OTHER:
PLOTTED IN: RELATIVE POWER db
TRANSMISSION DISTANCE: 500 ft.
OBSERVER: [illegible] DATE: [illegible]

[illegible] C 831YL (2 MAY 64)

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MCDONNELL
ST. LOUIS, MISSOURI

PAGE 121

REPORT TR 058-ADA.03

MODEL 195B

ANTENNA: NOSE STUB

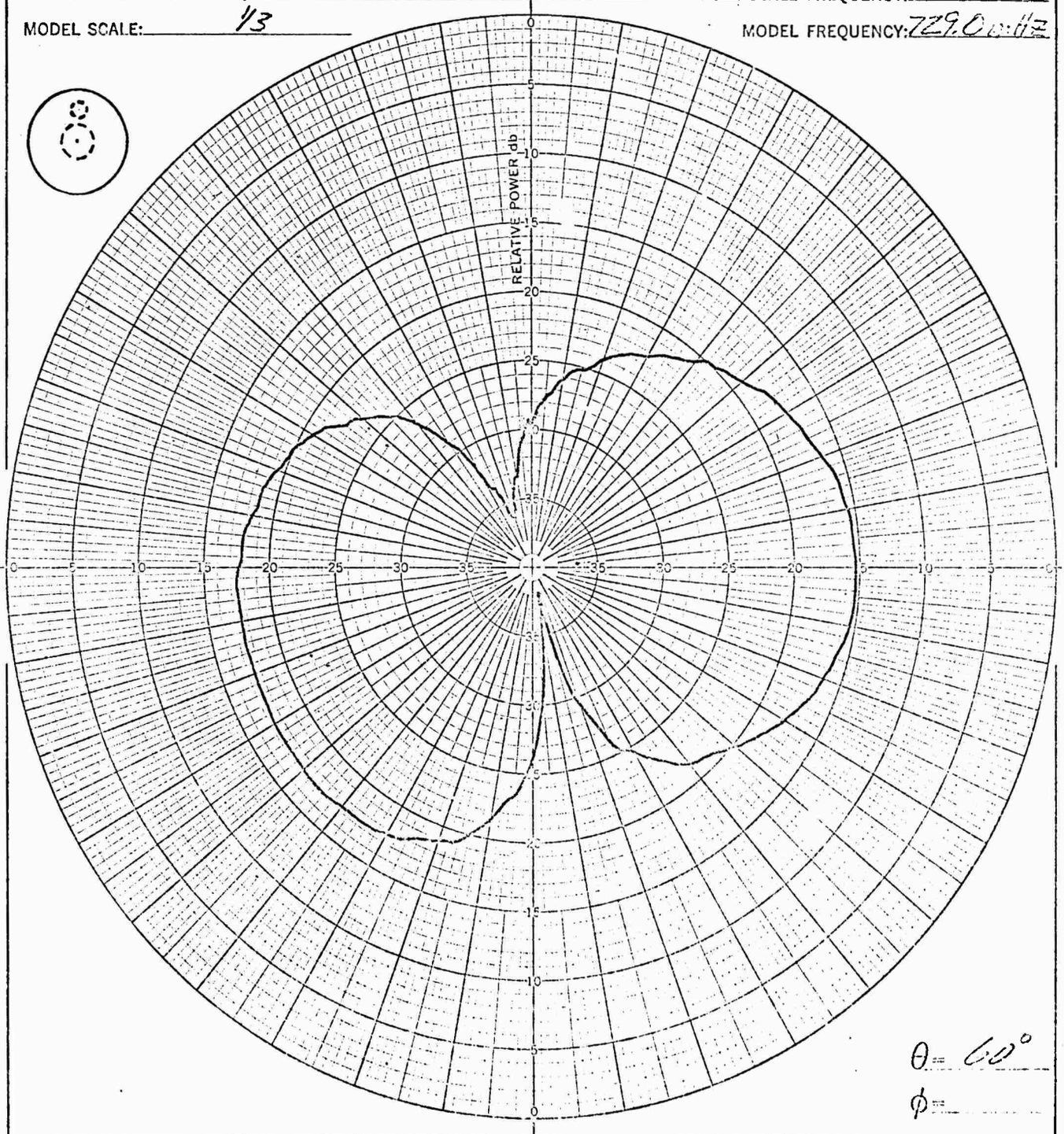
ANTENNA LOCATION: NOSE

MODEL SCALE: 1/3

VEHICLE: GEMINI B

FULL SCALE FREQUENCY: 243.0 mHz

MODEL FREQUENCY: 729.0 mHz



θ = 60°

ϕ = _____

CONFIGURATION: XI

REMARKS:

INTEGRATOR COUNT: 023.2

POLARIZATION: Eϕ [✓] Eθ [ ] OTHER:

PLOTTED IN: RELATIVE POWER db

TRANSMISSION DISTANCE: 20 ft

OBSERVER: [illegible] DATE: [illegible]

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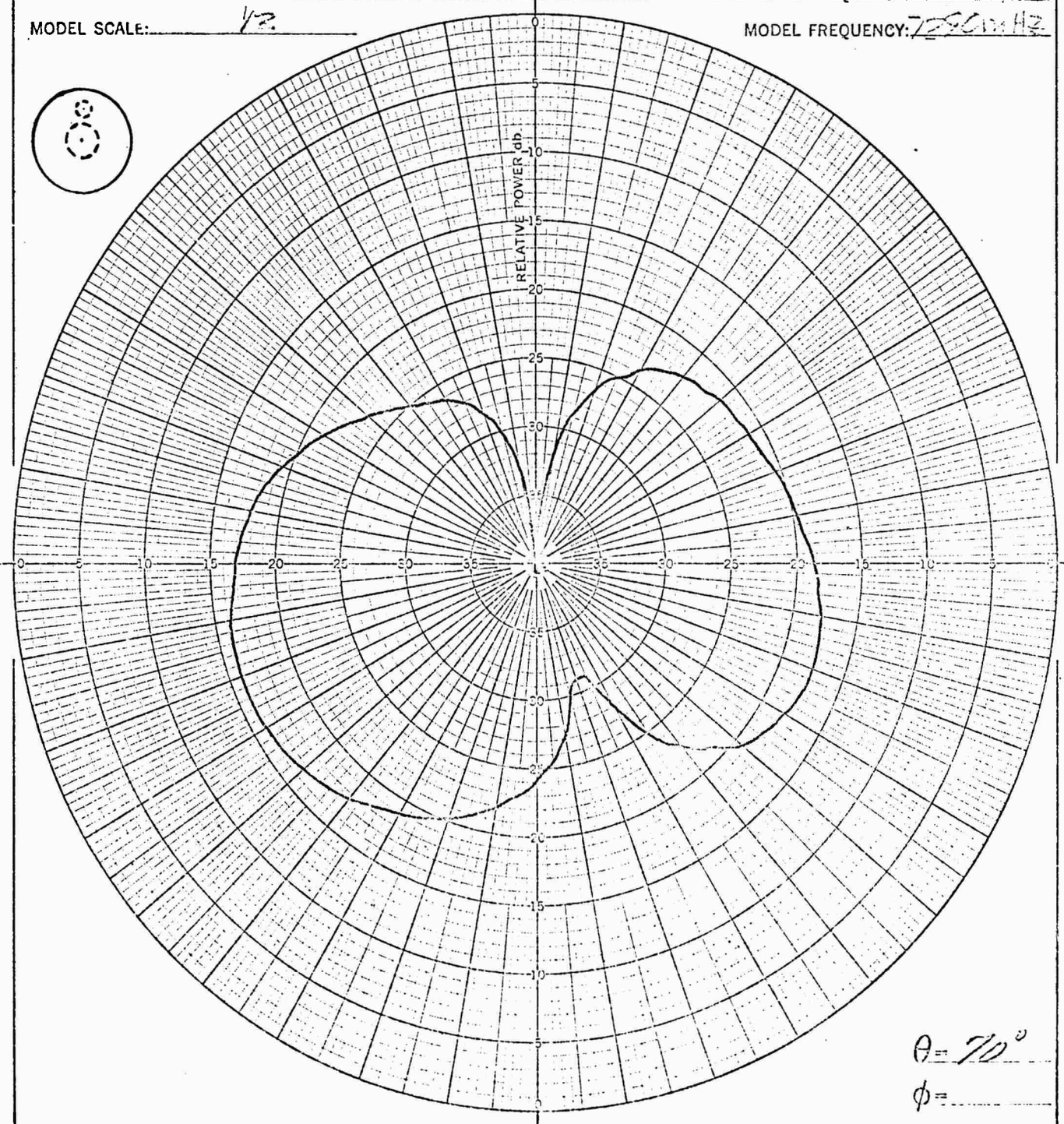
MCDONNELL
ST. LOUIS, MISSOURI

PAGE 122
REPORT TR 058-ADA.03
MODEL 195B

ANTENNA: NOSE STUB
ANTENNA LOCATION: NOSE
MODEL SCALE: 1/2

VEHICLE: GEMINI R
FULL SCALE FREQUENCY: 296 mHz
MODEL FREQUENCY: 592 mHz



θ = 70°
ϕ =

CONFIGURATION: XI

REMARKS:

INTEGRATOR COUNT: 01935
POLARIZATION: Eϕ [X] Eθ [ ] OTHER:
PLOTTED IN: RELATIVE POWER db
TRANSMISSION DISTANCE:
OBSERVER: DATE:

DATE

REVISED

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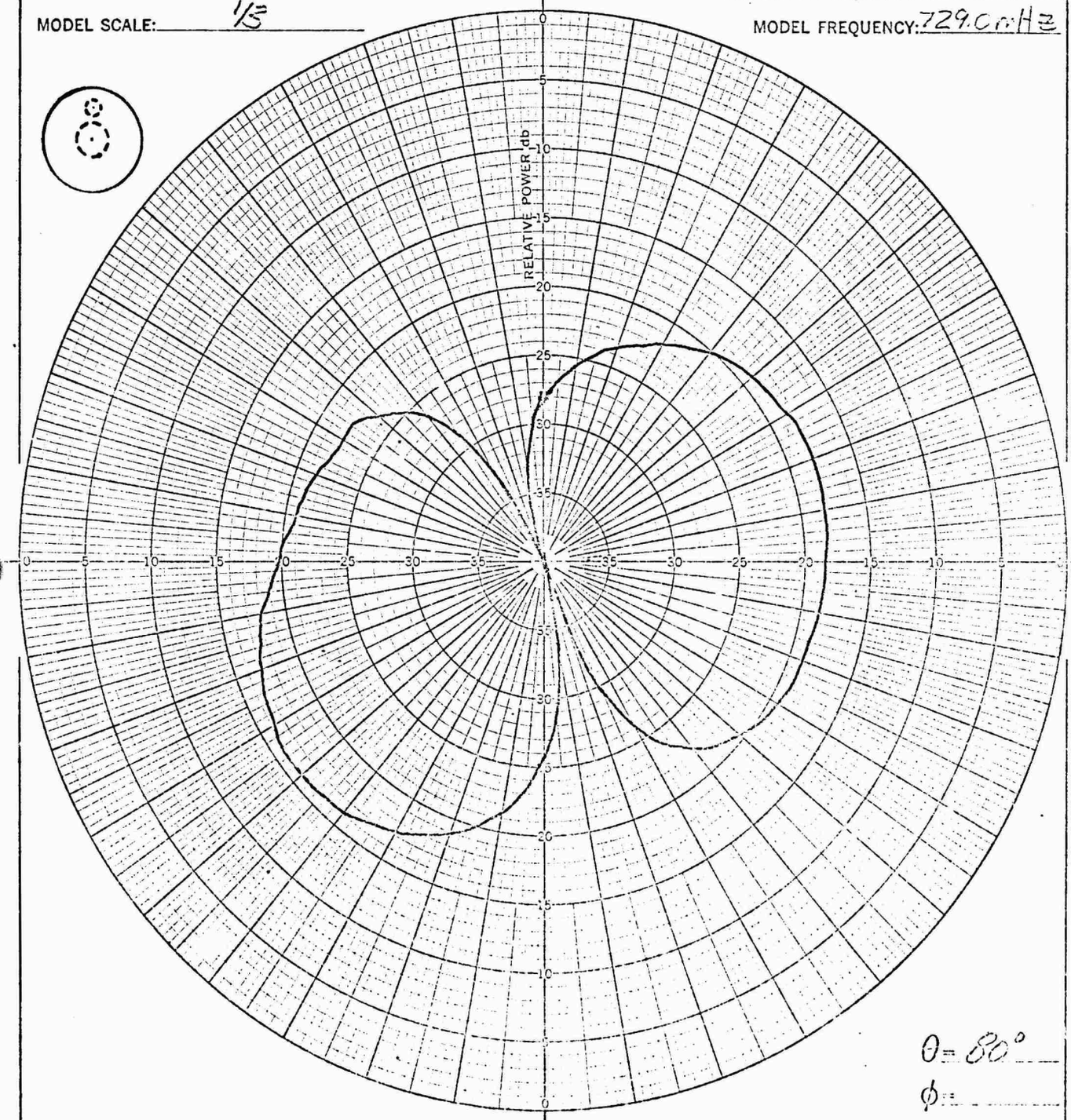
MCDONNELL
ST. LOUIS, MISSOURI

PAGE 123
REPORT TR 058-ADA.03
MODEL 195B

ANTENNA: NOSE STUB
ANTENNA LOCATION: NOSE
MODEL SCALE: 1/3

VEHICLE: GEMINI B
FULL SCALE FREQUENCY: 243.0 mHz
MODEL FREQUENCY: 729.0 mHz



CONFIGURATION: XL

REMARKS:

INTEGRATOR COUNT: 0126
POLARIZATION: Eϕ [✓] Eθ [ ] OTHER:
PLOTTED IN: RELATIVE POWER db
TRANSMISSION DISTANCE: 500 ft
OBSERVER: EM & IS DATE: 15-

DATE

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MCDONNELL
ST. LOUIS, MISSOURI

PAGE 124

REPORT TR 058-ADA.03

MODEL 195B

ANTENNA: NOSE STUB

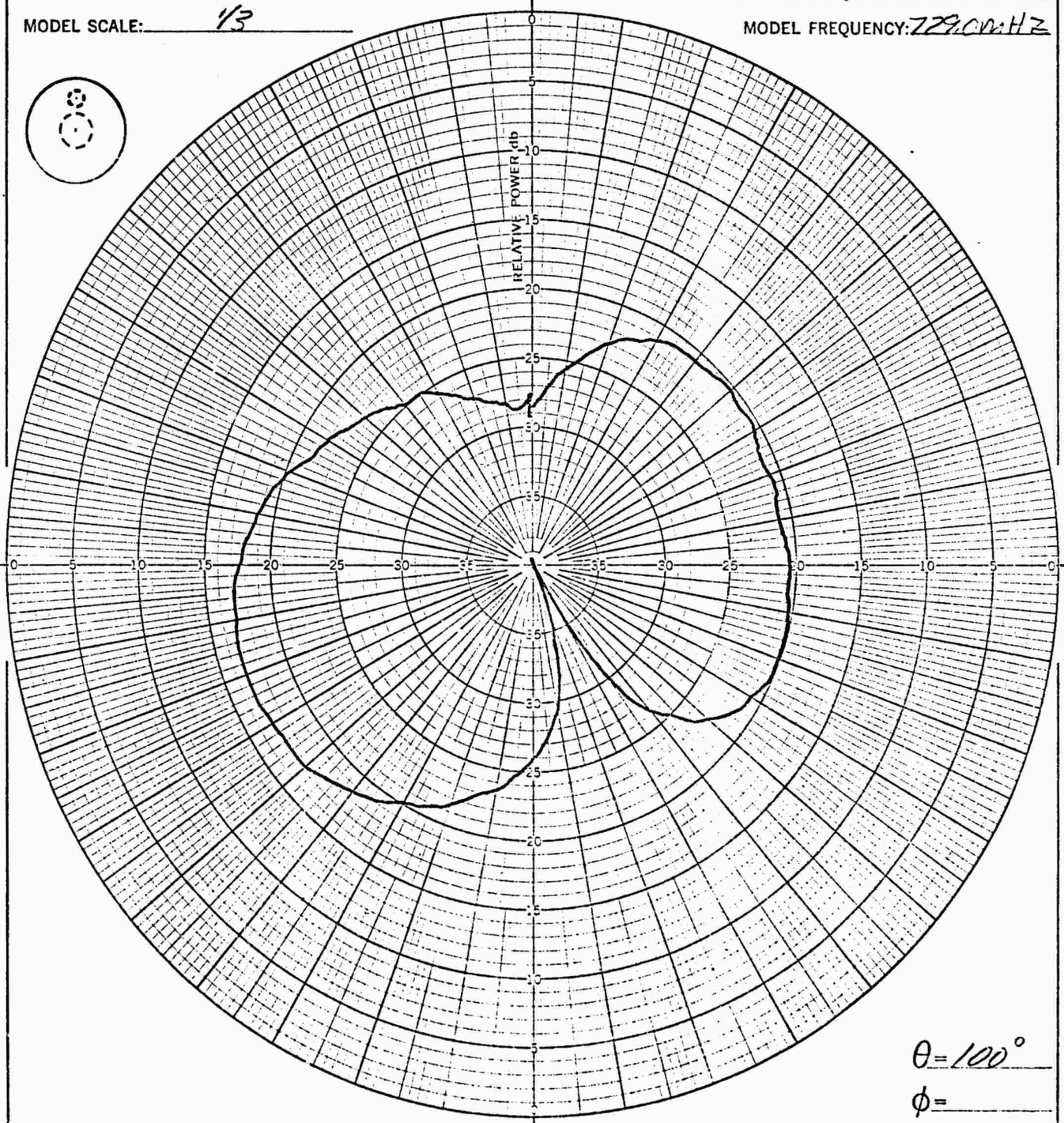
ANTENNA LOCATION: NOSE

MODEL SCALE: 1/3

VEHICLE: GEMINI B

FULL SCALE FREQUENCY: 243.0 mHz

MODEL FREQUENCY: 729.0 mHz



θ = 100°

φ =

CONFIGURATION: XI

INTEGRATOR COUNT: 0155

POLARIZATION: Eφ ☑ Eθ ☐ OTHER:

PLOTTED IN: RELATIVE POWER db

REMARKS:

TRANSMISSION DISTANCE: 500 Ft.

OBSERVER: EM & CS DATE: 15-6-67

MAC 231YL (7 MAY 64)

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MCDONNELL
ST. LOUIS, MISSOURI

PAGE 125

REPORT TR 058-ADA.03

MODEL 195B

ANTENNA: NOSE STUB

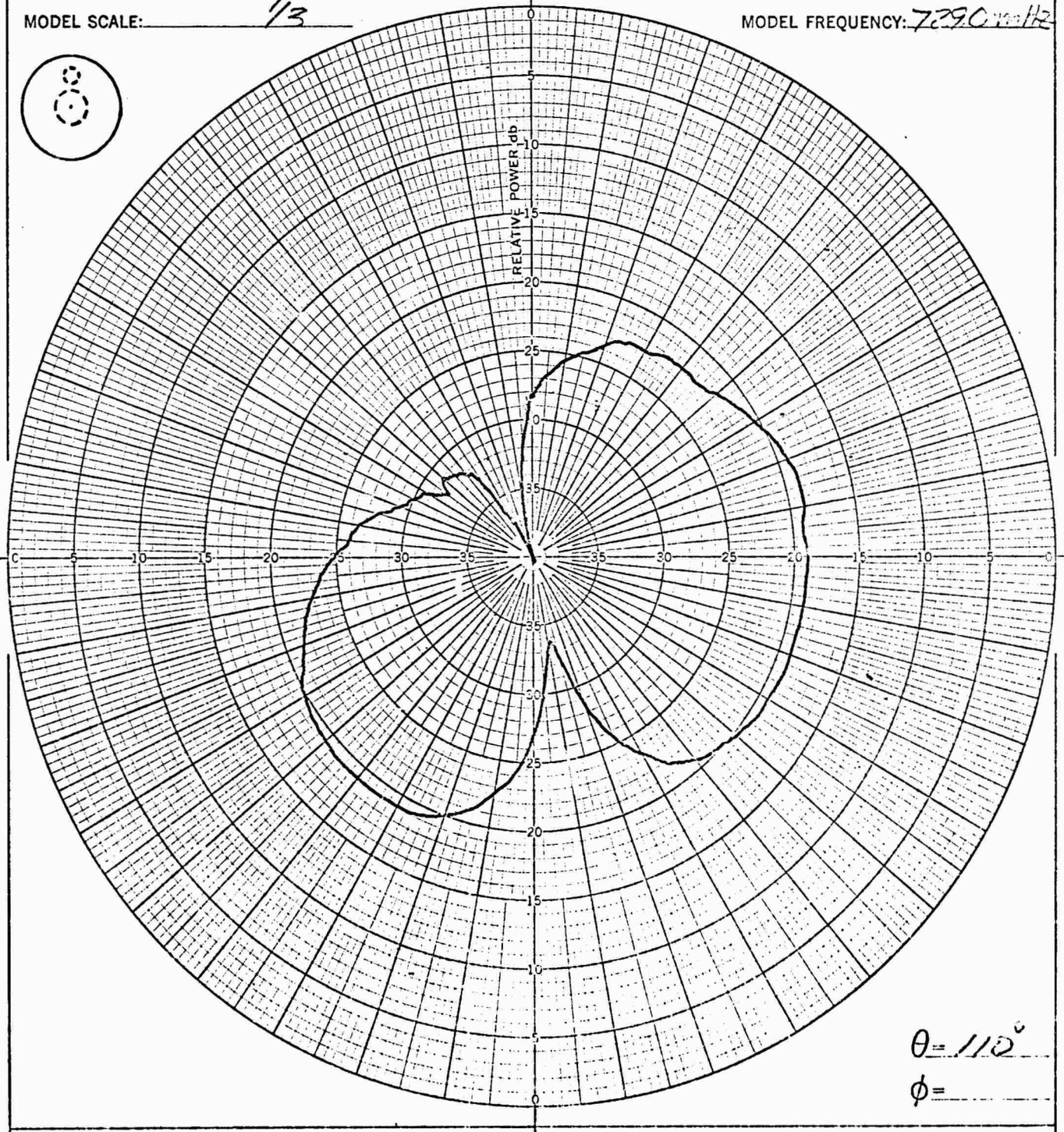
ANTENNA LOCATION: NOSE

MODEL SCALE: 1/3

VEHICLE: GEMINI B

FULL SCALE FREQUENCY: 243.0 mHz

MODEL FREQUENCY: 729.0 mHz



CONFIGURATION: XI

INTEGRATOR COUNT: 0123

POLARIZATION: Eϕ [✓] Eθ [ ] OTHER:

PLOTTED IN: RELATIVE POWER db

REMARKS:

TRANSMISSION DISTANCE: 500 ft

OBSERVER: [illegible] DATE: 5-[illegible]

MAC 231YL (7 MAY 64)

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DATE

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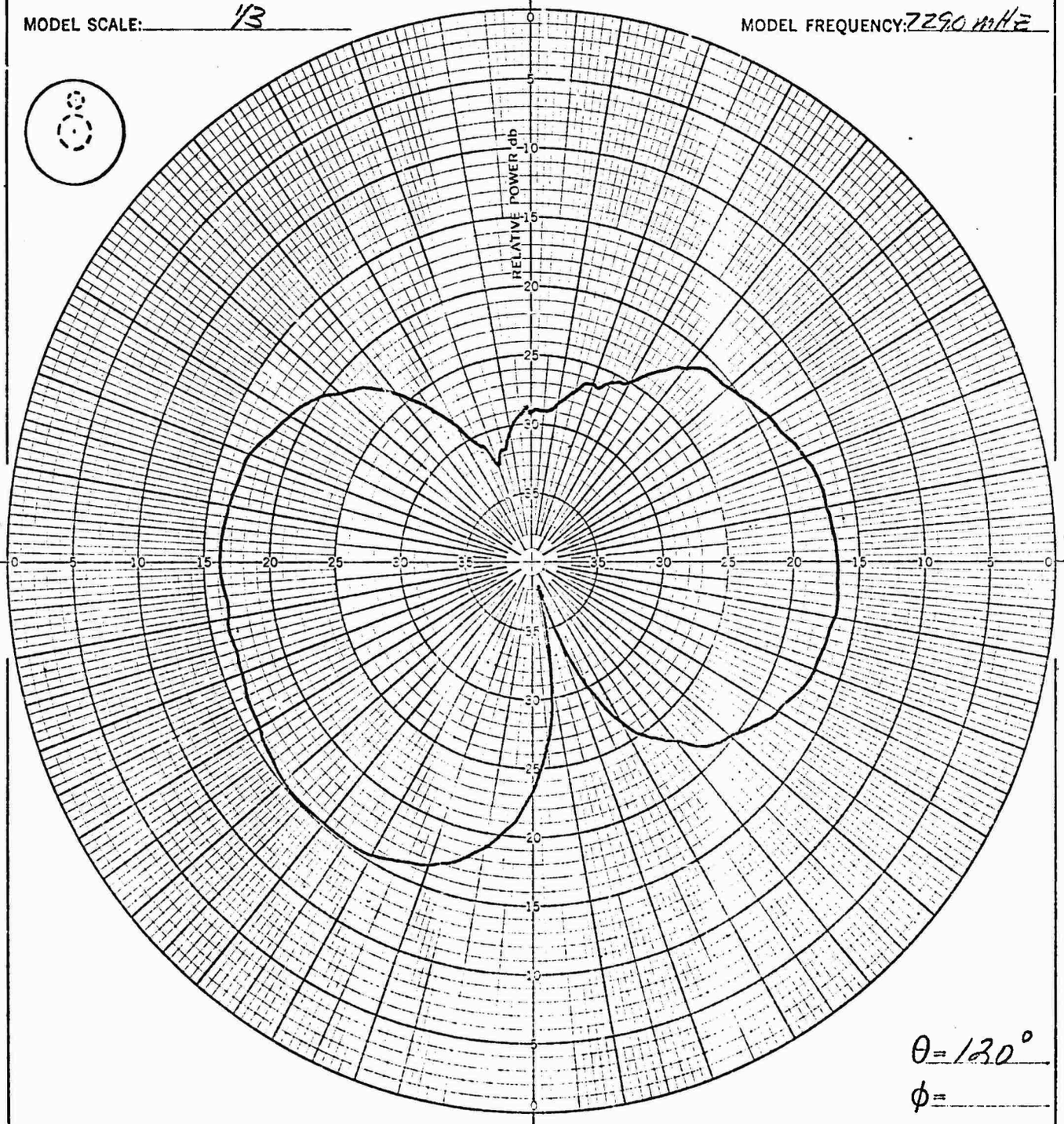
MCDONNELL
ST. LOUIS, MISSOURI

PAGE 126
REPORT TR 058-ADA.03
MODEL 195B

ANTENNA: NOSE STUB
ANTENNA LOCATION: NOSE
MODEL SCALE: 1/3

VEHICLE: GEMINI B
FULL SCALE FREQUENCY: 2430 mHz
MODEL FREQUENCY: 7290 mHz



θ = 120°
ϕ =

CONFIGURATION: X1

REMARKS:

INTEGRATOR COUNT: 02.66
POLARIZATION: Eϕ [✓] Eθ [ ] OTHER:
PLOTTED IN: RELATIVE POWER db
TRANSMISSION DISTANCE: 500 ft
OBSERVER: EM & CS DATE: 15-6-67

MAC 231YL (7 MAY 64)

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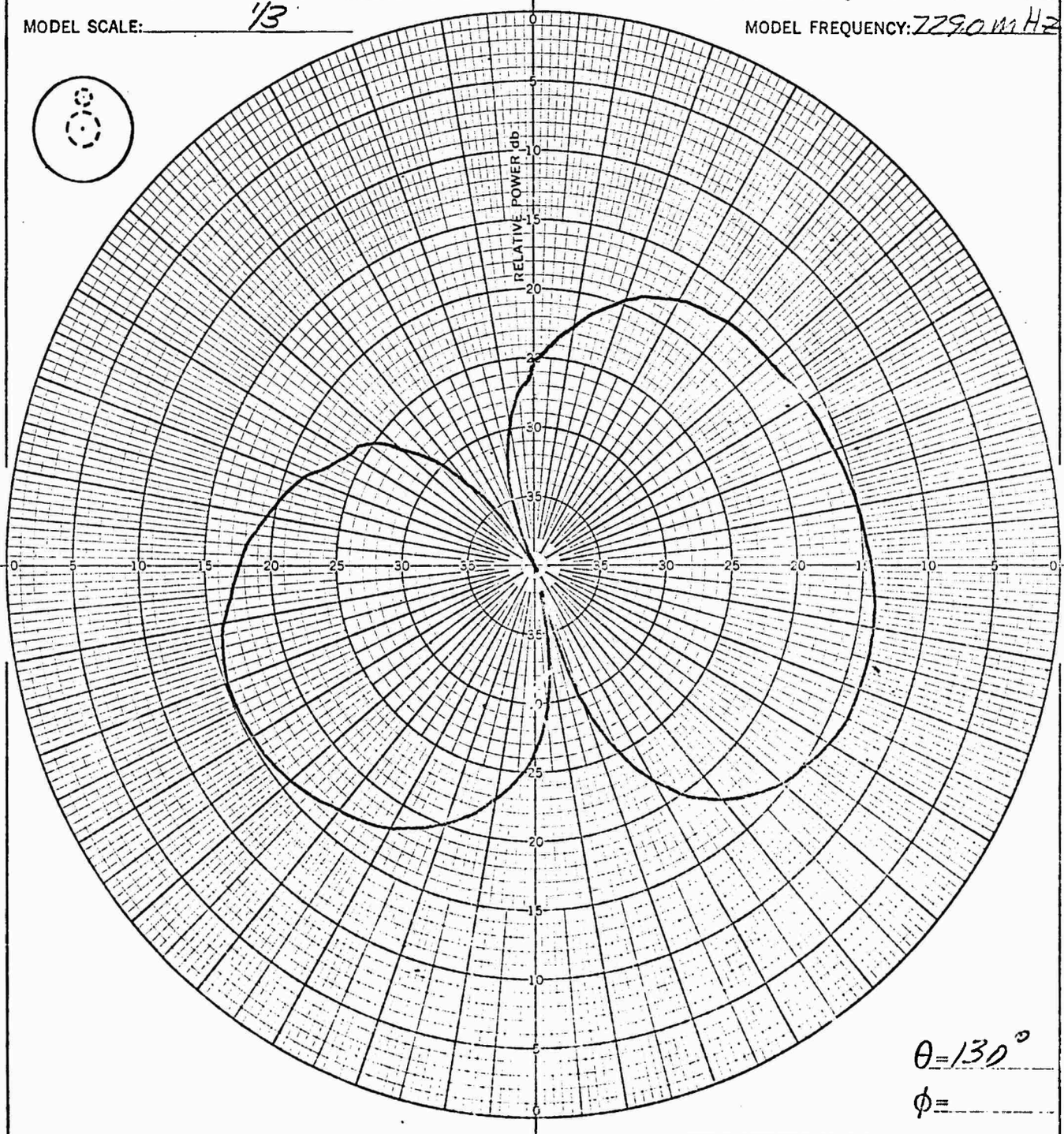
MCDONNELL
ST. LOUIS, MISSOURI

PAGE 127
REPORT TR 058-ADA.03
MODEL 195B

ANTENNA: NOSE STUB
ANTENNA LOCATION: NOSE
MODEL SCALE: 1/3

VEHICLE: GEMINI B
FULL SCALE FREQUENCY: 243.0 mHz
MODEL FREQUENCY: 729.0 mHz



θ=130°
ϕ=

CONFIGURATION: XII

REMARKS:

INTEGRATOR COUNT: 0331
POLARIZATION: Eϕ [✓] Eθ [ ] OTHER:
PLOTTED IN: RELATIVE POWER db
TRANSMISSION DISTANCE: 500 ft.
OBSERVER: FRECS DATE: 15-6-67

MAC 231YL 17 MAY 64

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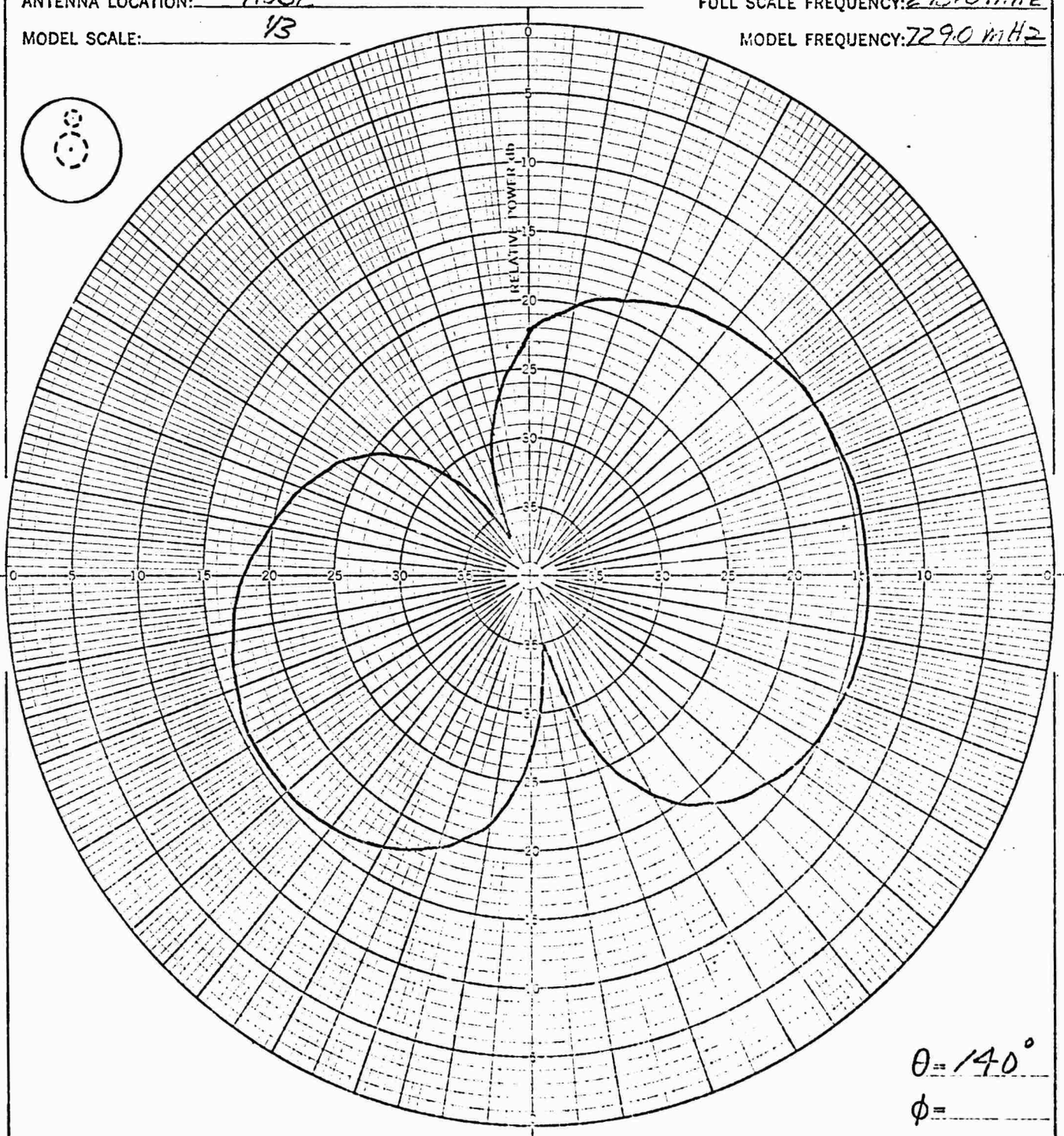
MCDONNELL
ST. LOUIS, MISSOURI

PAGE 128
REPORT TR 058-ADA.03
MODEL 195B

ANTENNA: NOSE STUB
ANTENNA LOCATION: NOSE
MODEL SCALE: 1/3

VEHICLE: GEMINI B
FULL SCALE FREQUENCY: 243.6 mHz
MODEL FREQUENCY: 2290 mHz



θ = 140°
ϕ =

CONFIGURATION: YT

REMARKS:

INTEGRATOR COUNT: 0338
POLARIZATION: Eϕ ✓ Eθ ☐ OTHER:
PLOTTED IN: RELATIVE POWER db
TRANSMISSION DISTANCE: 500 ft
OBSERVER: EMES DATE: 15-6-67

FORM 231YL 17 MAY 61

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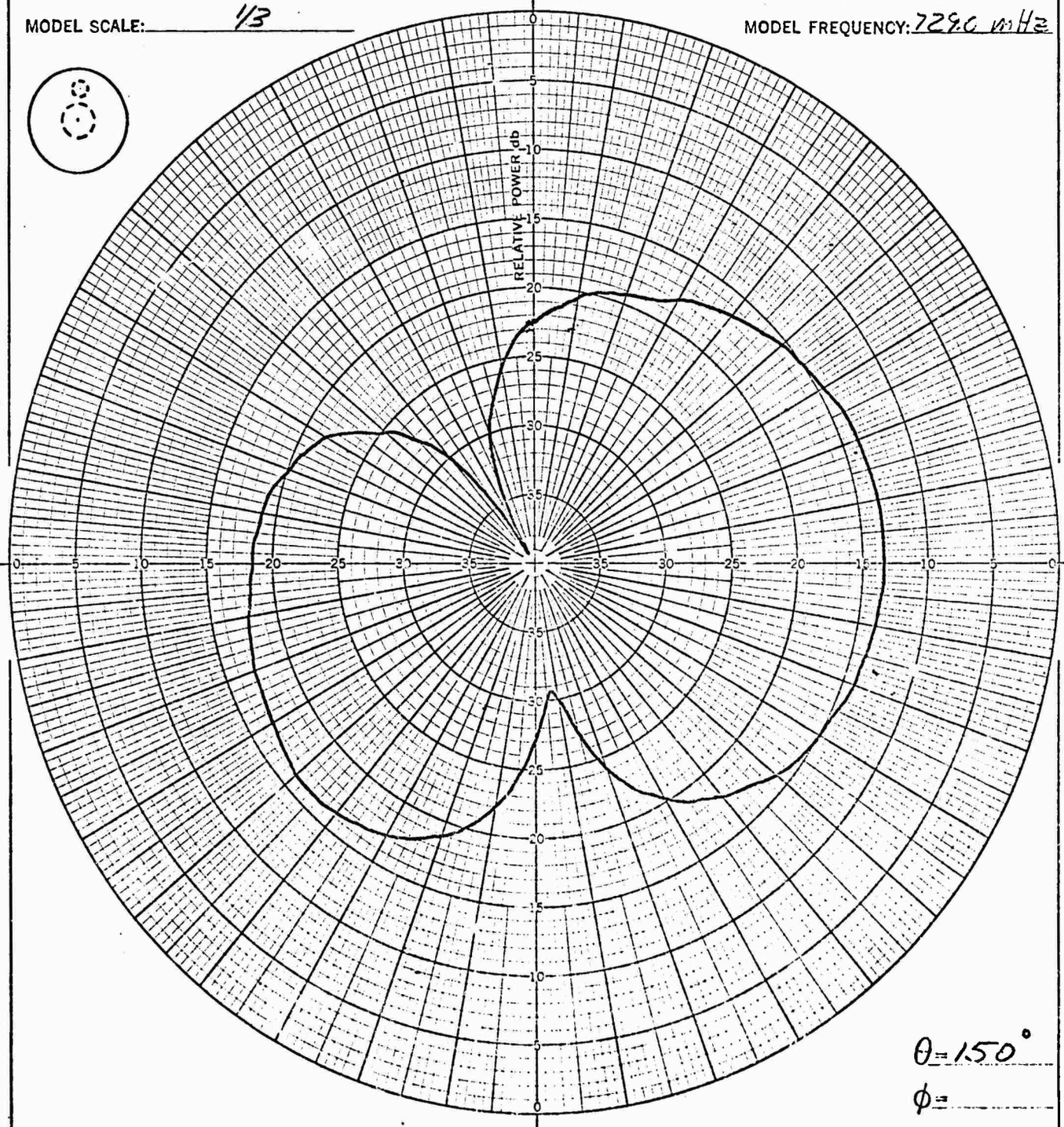
PAGE 129
REPORT TR 058-ADA.03
MODEL 195B

ANTENNA: NOSE STUB
ANTENNA LOCATION: NOSE
MODEL SCALE: 1/3

VEHICLE: GEMINI R
FULL SCALE FREQUENCY: 2420 mHz
MODEL FREQUENCY: 726 mHz



θ = 150°
φ =

CONFIGURATION: XI

REMARKS:

INTEGRATOR COUNT: 0354
POLARIZATION: Eφ [✓] Eθ [ ] OTHER:
PLOTTED IN: RELATIVE POWER db
TRANSMISSION DISTANCE: 500 ft.
OBSERVER: TAGS DATE: 15-6-67

MAC 231YL (7 MAY 64)

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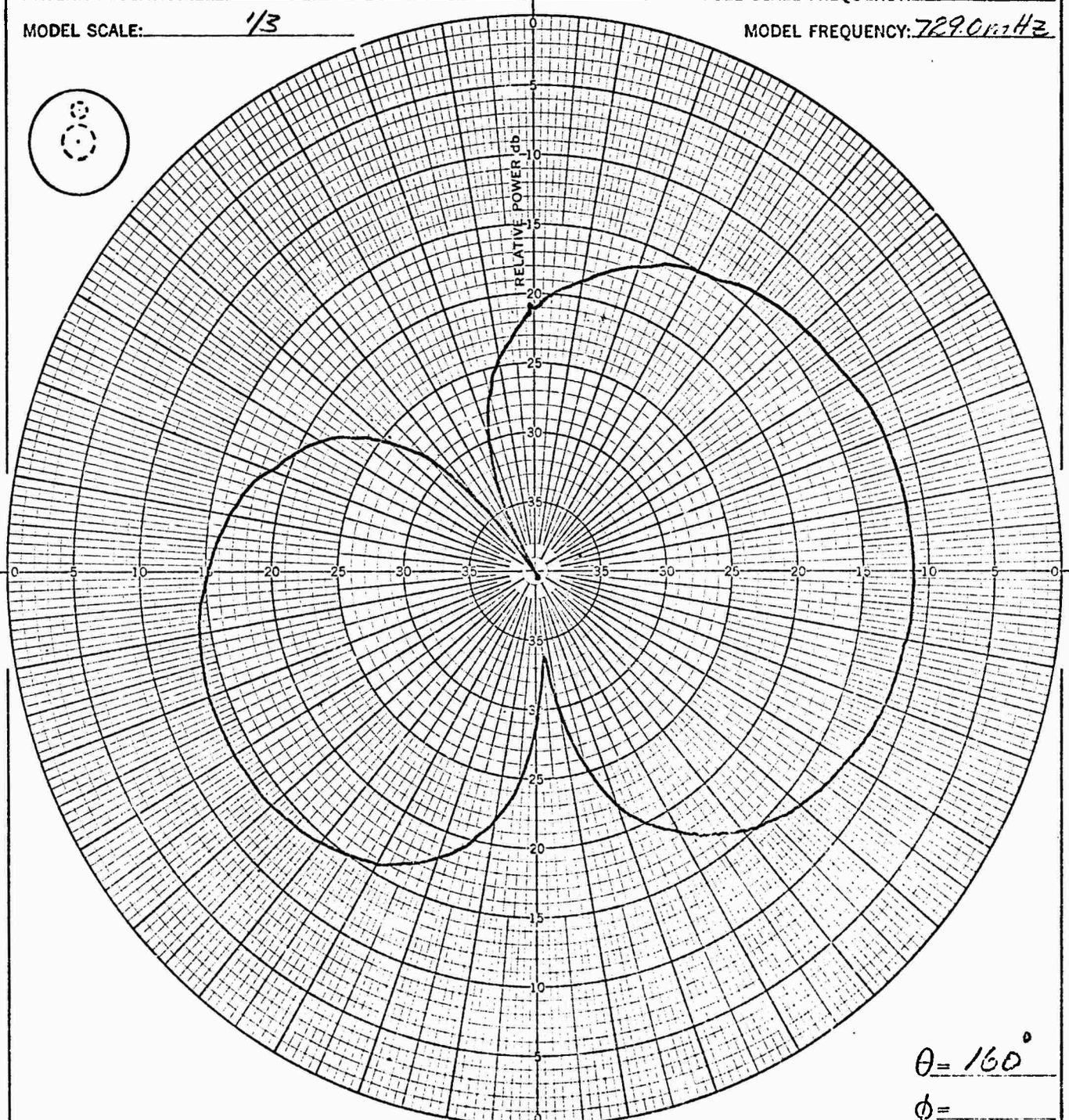
PAGE 130
REPORT TR 058-ADA.03
MODEL 195B

ANTENNA: NOSE STUB
ANTENNA LOCATION: NOSE
MODEL SCALE: 1/3

VEHICLE: GEMINI B
FULL SCALE FREQUENCY: 243.0 mHz
MODEL FREQUENCY: 729.0 mHz



CONFIGURATION: VI

REMARKS:

INTEGRATOR COUNT: 0613
POLARIZATION: Eϕ [✓] Eθ [ ] OTHER:
PLOTTED IN: RELATIVE POWER db
TRANSMISSION DISTANCE: 500 ft.
OBSERVER: FM & CS DATE: 15-6-67

MAC 231YL (7 MAY 64)

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MCDONNELL
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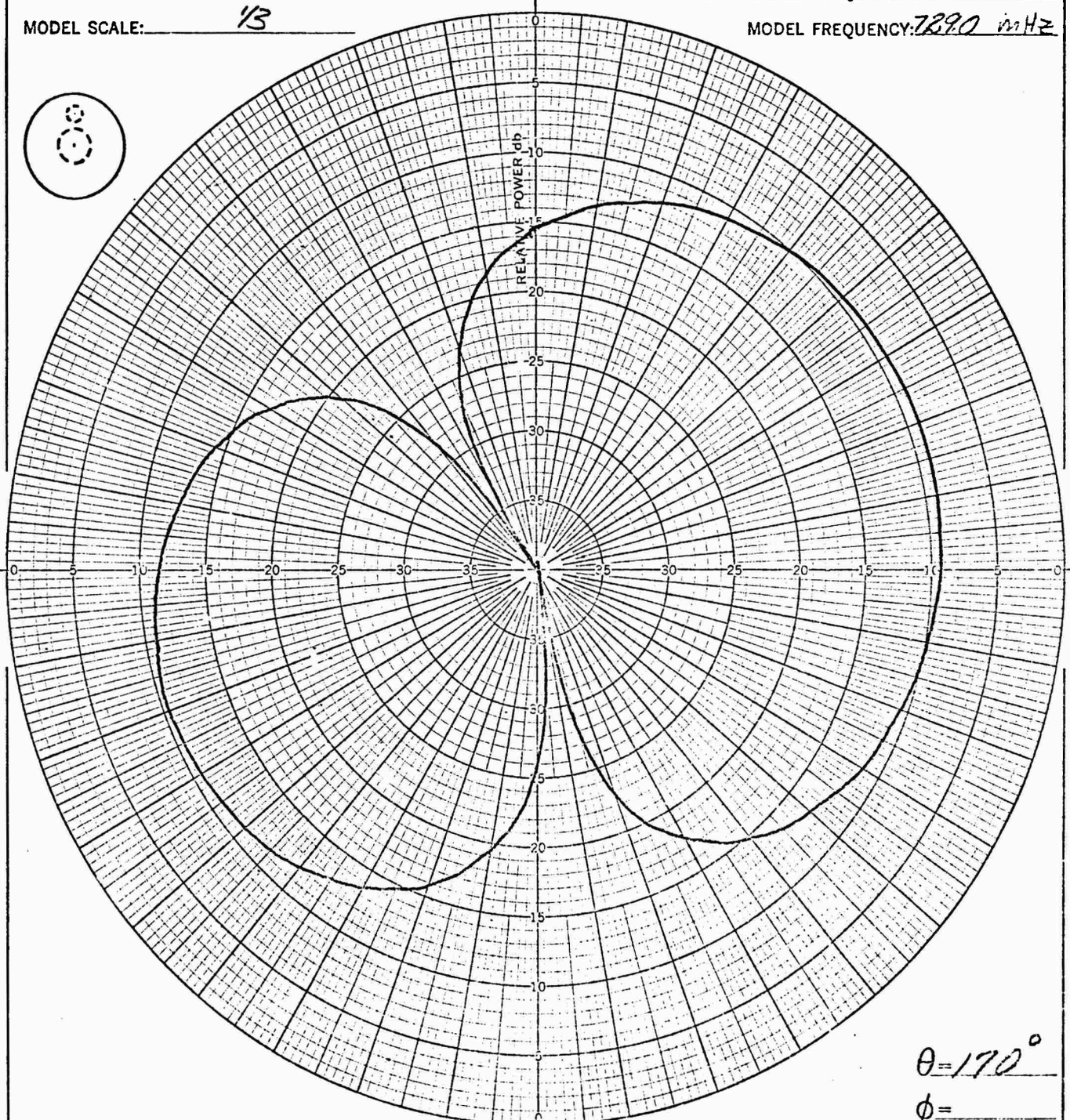
PAGE 131
REPORT TR 058-ADA.03
MODEL 195B

ANTENNA: NOSE STUB
ANTENNA LOCATION: NOSE
MODEL SCALE: 1/3

VEHICLE: GEMINI B
FULL SCALE FREQUENCY: 243.0 mHz
MODEL FREQUENCY: 72.90 mHz



θ = 170°
ϕ =

CONFIGURATION: XI

REMARKS:

INTEGRATOR COUNT: 1145
POLARIZATION: Eϕ [✓] Eθ [ ] OTHER:
PLOTTED IN: RELATIVE POWER db
TRANSMISSION DISTANCE: 50 ft.
OBSERVER: EM & CS DATE: 15-6-67

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MCDONNELL
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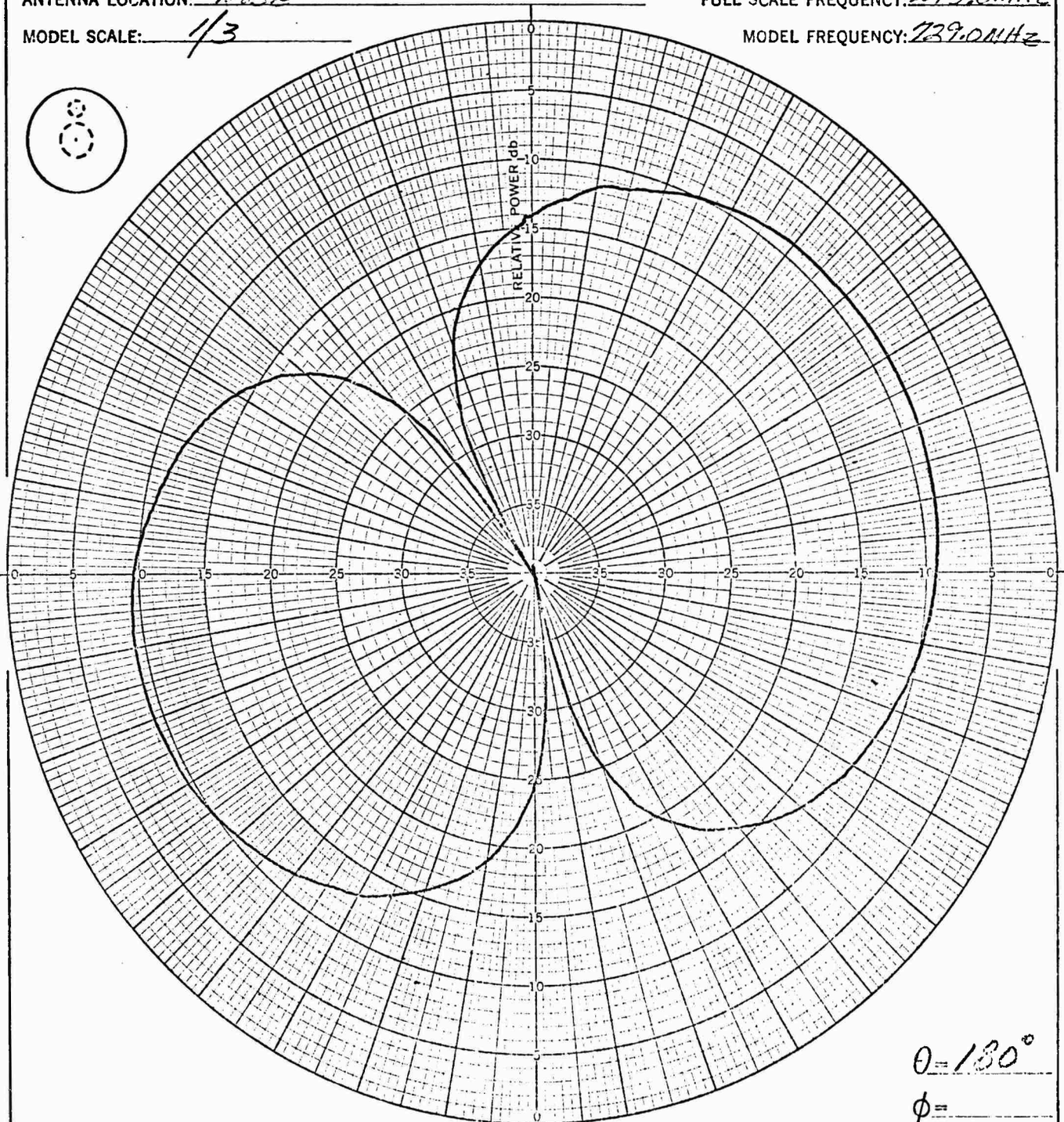
PAGE 132
REPORT TR 058-ADA.03
MODEL 195B

ANTENNA: Nose Stub
ANTENNA LOCATION: Nose
MODEL SCALE: 1/3

VEHICLE: Gemini II
FULL SCALE FREQUENCY: 243.0MHz
MODEL FREQUENCY: 729.0MHz



θ = 180°
ϕ =

CONFIGURATION: XT

REMARKS:

INTEGRATOR COUNT

POLARIZATION: Eϕ [✓] Eθ [ ] OTHER:

PLOTTED IN: RELATIVE POWER db

TRANSMISSION DISTANCE: Scale

OBSERVER: EM & CS DATE: 15-6-67

MAC 2511-1. (7 MAY 64)

K & E CO.

ISOTROPIC CALCULATION

I_2 = Count for calibration radius = 10,000

For Electronic Integrator and db Recording

$K = \frac{2}{\pi} = 0.63662$ $\quad KI_2 = 6366.2$

$\frac{KI_2}{I_1}$ = Power Ratio $\quad 10 \log_{10}$ Power Ratio = Istropic db below calibration level

A = Integrator Count $\quad$ Recorder Chart Level for calibration **- 3 db**

CONFIGURATION XL

sin θ	θ	A_θ Pol.	A_ϕ Pol.	A_θ Pol.	A_ϕ Pol.	θ
0.17365	10°	0766	0432	4676	1145	170°
0.34202	20°	2043	0462	7434	0613	160°
0.50000	30°	3378	0485	5062	0354	150°
0.64279	40°	3318	0385	5810	0338	140°
0.76604	50°	4855	0291	2508	0331	130°
0.86603	60°	4712	0234	2597	0266	120°
0.93969	70°	5925	0188	5874	0123	110°
0.98481	80°	3535	0196	3431	0155	100°
1.00000	90°	5499	0115			

$\sum_{180}^{0} (A_\theta \sin\theta + A_\phi \sin\theta)$ 52,937.26 ÷ 18 = I_1 2,940.96

$\frac{6366.2}{I_1}$ = Power Ratio 2.16

Isotropic = 10 Log_{10} Power Ratio = 3.34 db Below calibration level

Isotropic Chart Level = - 6.64 db

FREQ. 729.0 mHz W/O FADING

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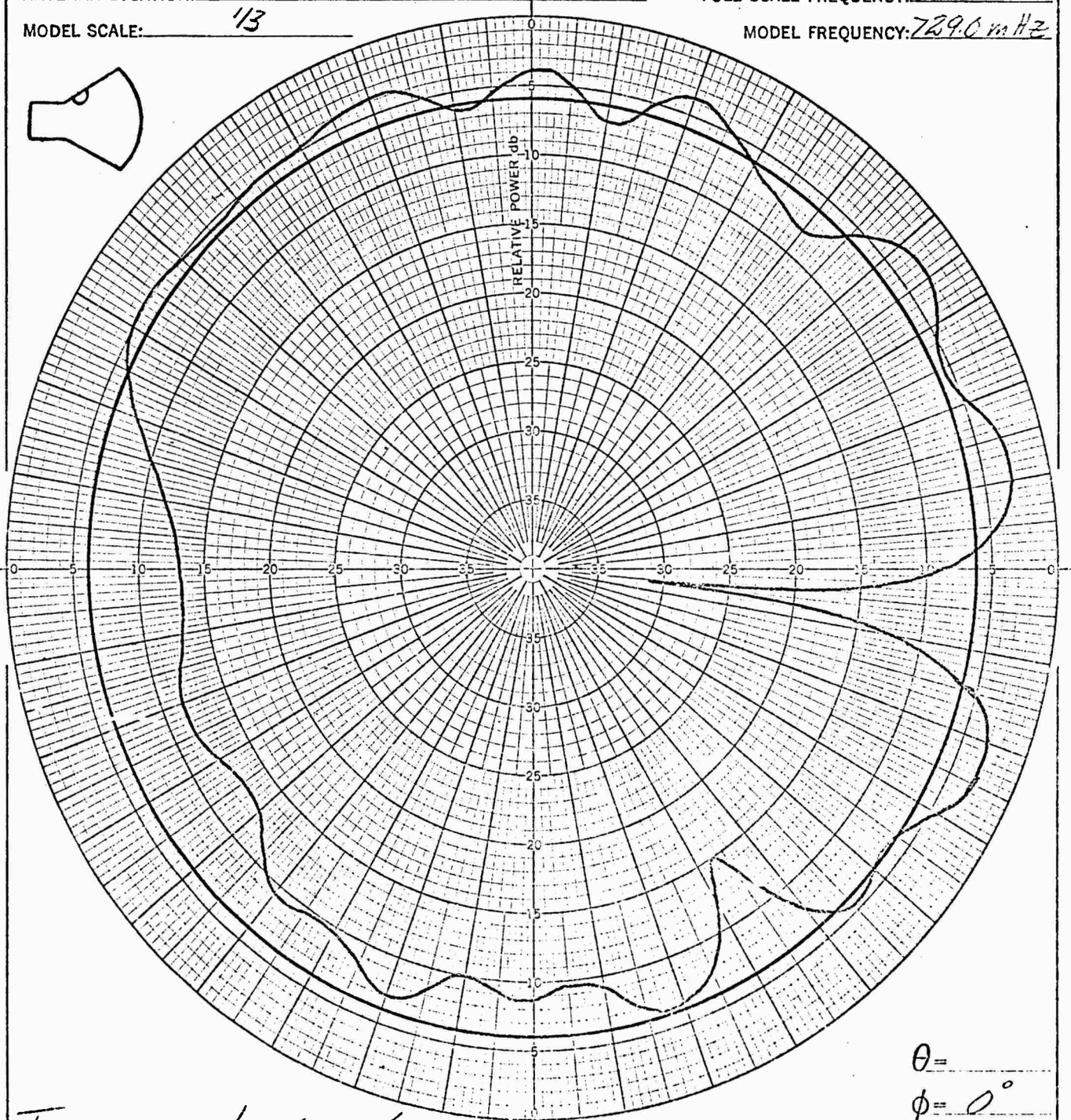
PAGE 134
REPORT TR 058-ADA.03
MODEL 195B

ANTENNA: NOSE STUB
ANTENNA LOCATION: NOSE
MODEL SCALE: 1/3

VEHICLE: GEMINI B
FULL SCALE FREQUENCY: 243.0 m Hz
MODEL FREQUENCY: 729.0 m Hz



θ =
φ = 0°

ISOTROPIC LEVEL -6.05 db

CONFIGURATION: XII
W/Nose Fairing

REMARKS: CALIBRATION -3 db LINE

INTEGRATOR COUNT:
POLARIZATION: Eφ [ ] Eθ [✓] OTHER:
PLOTTED IN: RELATIVE POWER db
TRANSMISSION DISTANCE: 500 ft.
OBSERVER: [illegible] DATE: 20-6-67

MAC 231YL (7 MAY 64)

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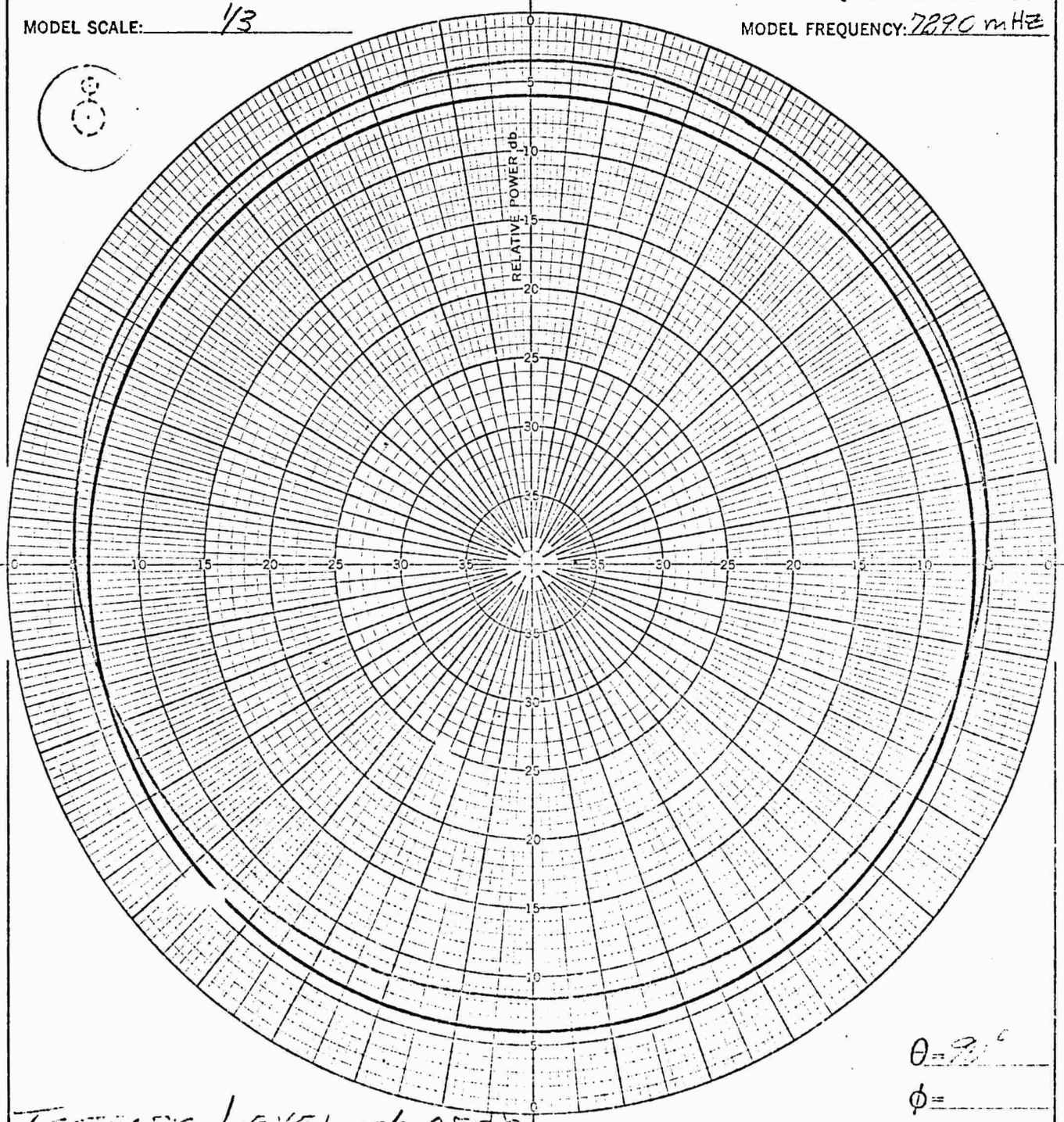
PAGE 135
REPORT TR 058-ADA.03
MODEL 195B

ANTENNA: NOSE STUB
ANTENNA LOCATION: NOSE
MODEL SCALE: 1/3

VEHICLE: GEMINI B
FULL SCALE FREQUENCY: 2490 mHz
MODEL FREQUENCY: 7290 mHz



θ = 90°
ϕ =

TYPICAL LEVEL -6.05 db

CONFIGURATION: XII

INTEGRATOR COUNT: 5648

POLARIZATION: Eϕ [ ] Eθ [/] OTHER:

PLOTTED IN: RELATIVE POWER db

REMARKS: OMNIDIRECTIONAL COVERAGE

TRANSMISSION DISTANCE: 50' FT

OBSERVER: EAS DCS DATE: 20-3-67

MAC 631YL (7 MAY 64)

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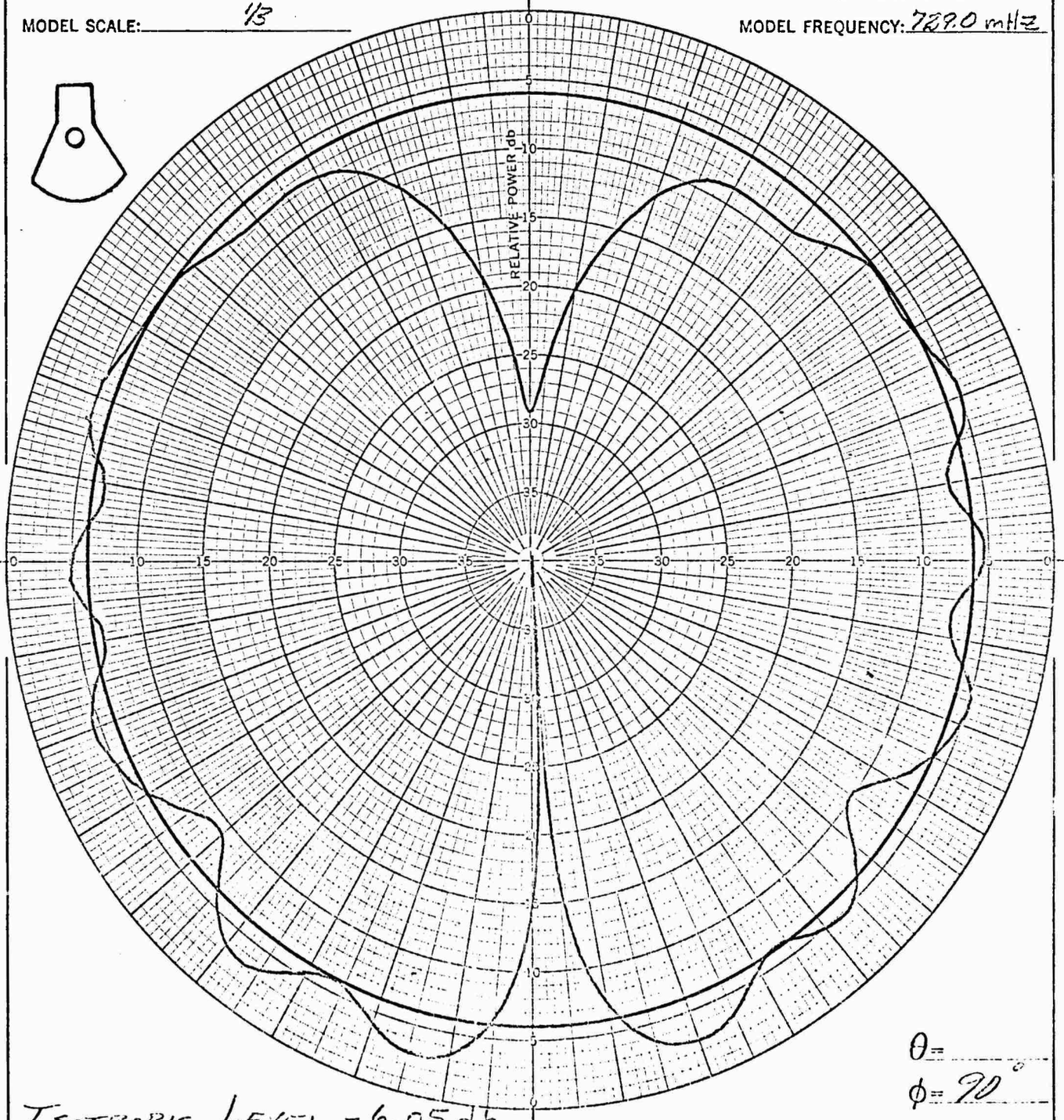
PAGE 136
REPORT TR 058-ADA.03
MODEL 195B

ANTENNA: NOSE STUB
ANTENNA LOCATION: NOSE
MODEL SCALE: 1/3

VEHICLE: GEMINI B
FULL SCALE FREQUENCY: 243.0 mHz
MODEL FREQUENCY: 729.0 mHz



θ =
φ = 90°

ISOTROPIC LEVEL - 6.05 db

CONFIGURATION: XII

REMARKS: CALIBRATION -3db LINE

INTEGRATOR COUNT:

POLARIZATION: Eφ [ ] Eθ [✓] OTHER:

PLOTTED IN: RELATIVE POWER db

TRANSMISSION DISTANCE: 500 FT

OBSERVER: EM&CS DATE: 20-

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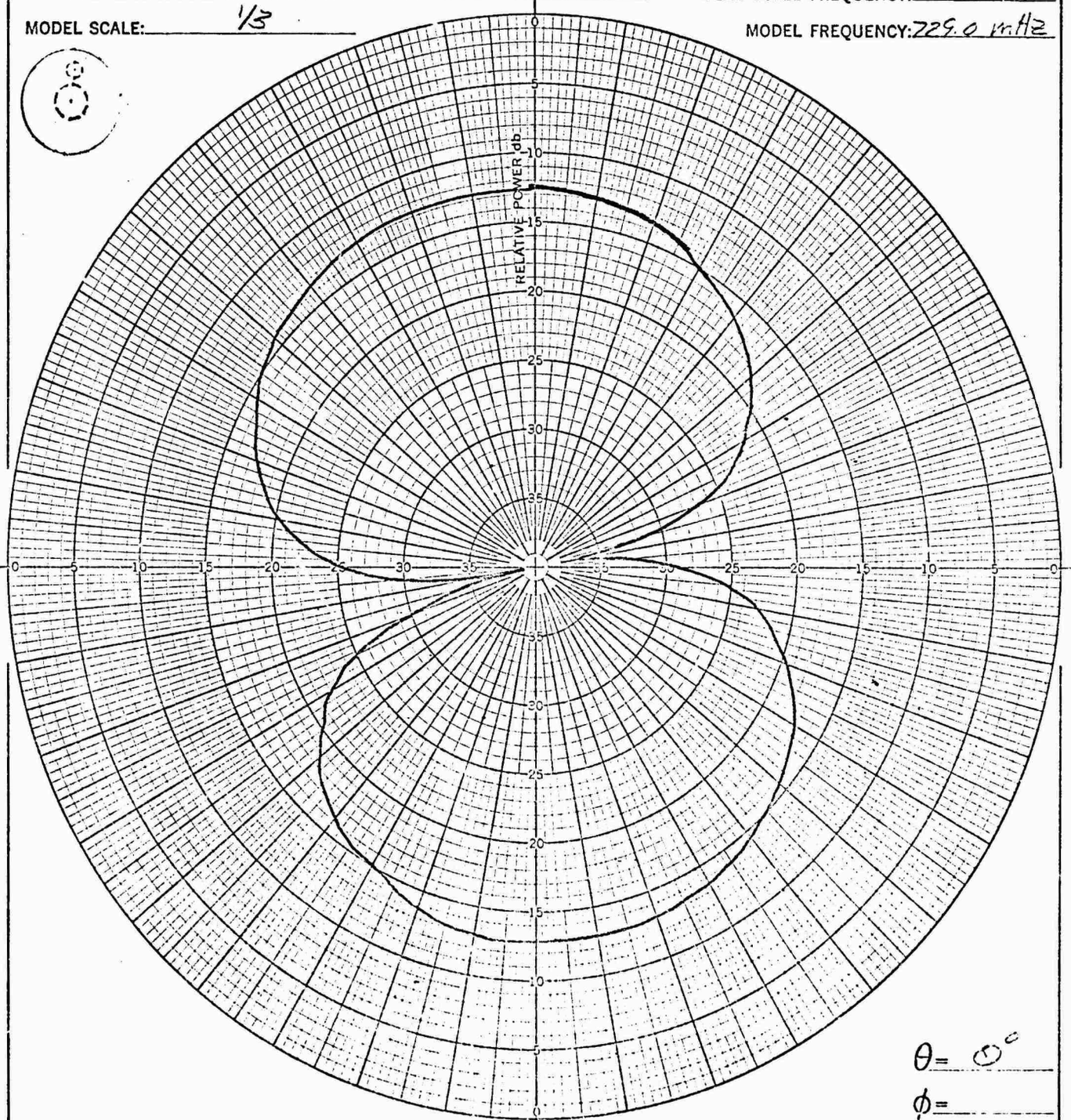
PAGE 137
REPORT TR 058-ADA.03
MODEL 195B

ANTENNA: NOSE STUB
ANTENNA LOCATION: NOSE
MODEL SCALE: 1/3

VEHICLE: GEMINI B
FULL SCALE FREQUENCY: 243.0 mHz
MODEL FREQUENCY: 229.0 mHz



θ = 0°
ϕ =

CONFIGURATION: XII

INTEGRATOR COUNT: 0 5 1 3

POLARIZATION: Eϕ [ ] Eθ [✓] OTHER:

PLOTTED IN: RELATIVE POWER db

REMARKS:

TRANSMISSION DISTANCE: 500 ft.

OBSERVER: E.M. & C.S. DATE: 20-6-[illegible]

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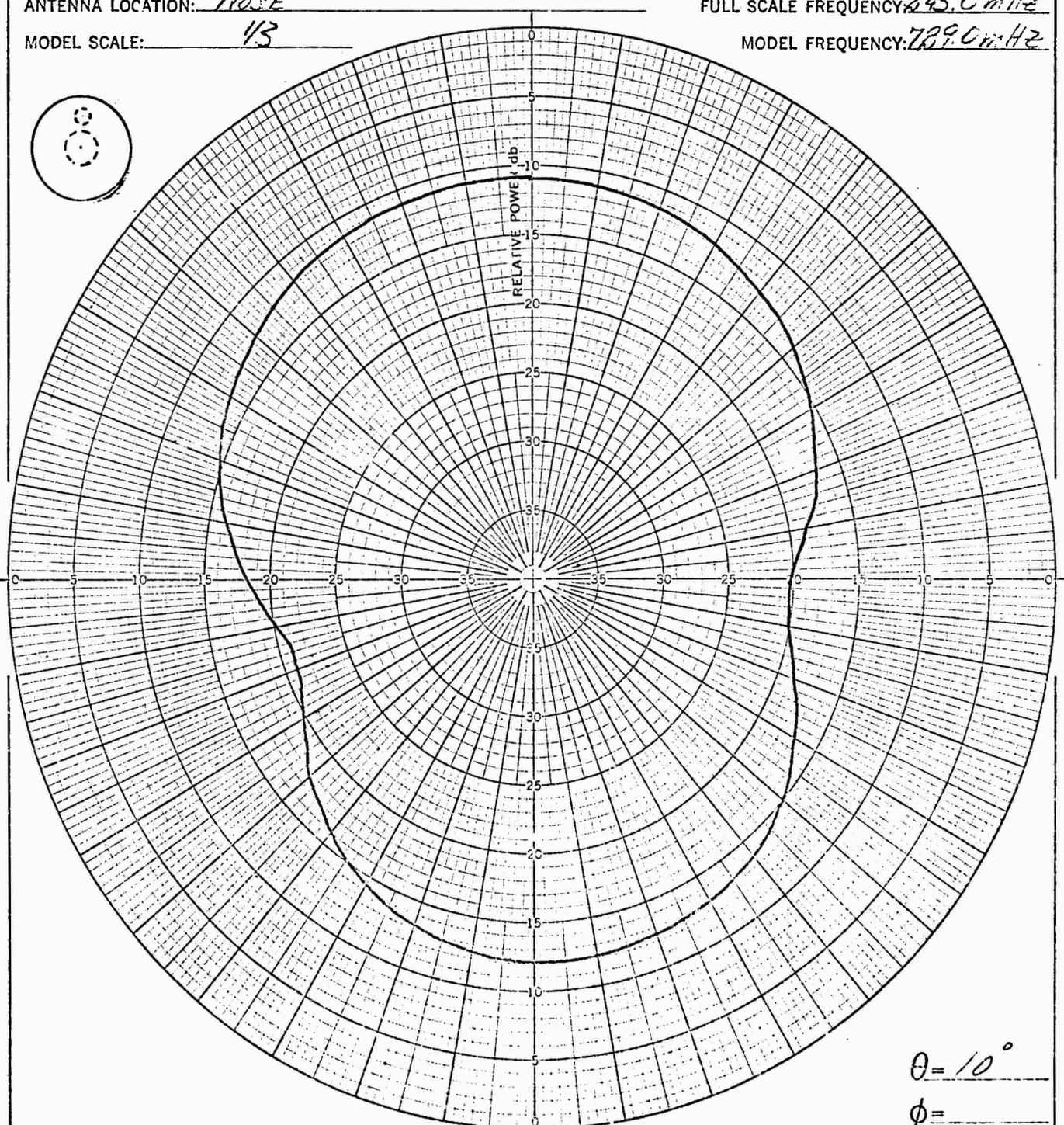
PAGE 138
REPORT TR 058-ADA.03
MODEL 195B

ANTENNA: NOSE STUB
ANTENNA LOCATION: NOSE
MODEL SCALE: 1/3

VEHICLE: GEMINI B
FULL SCALE FREQUENCY: 243.0 mHz
MODEL FREQUENCY: 729.0 mHz



θ = 10°
ϕ =

CONFIGURATION: XII

INTEGRATOR COUNT: 0857

POLARIZATION: Eϕ [ ] Eθ [✓] OTHER:

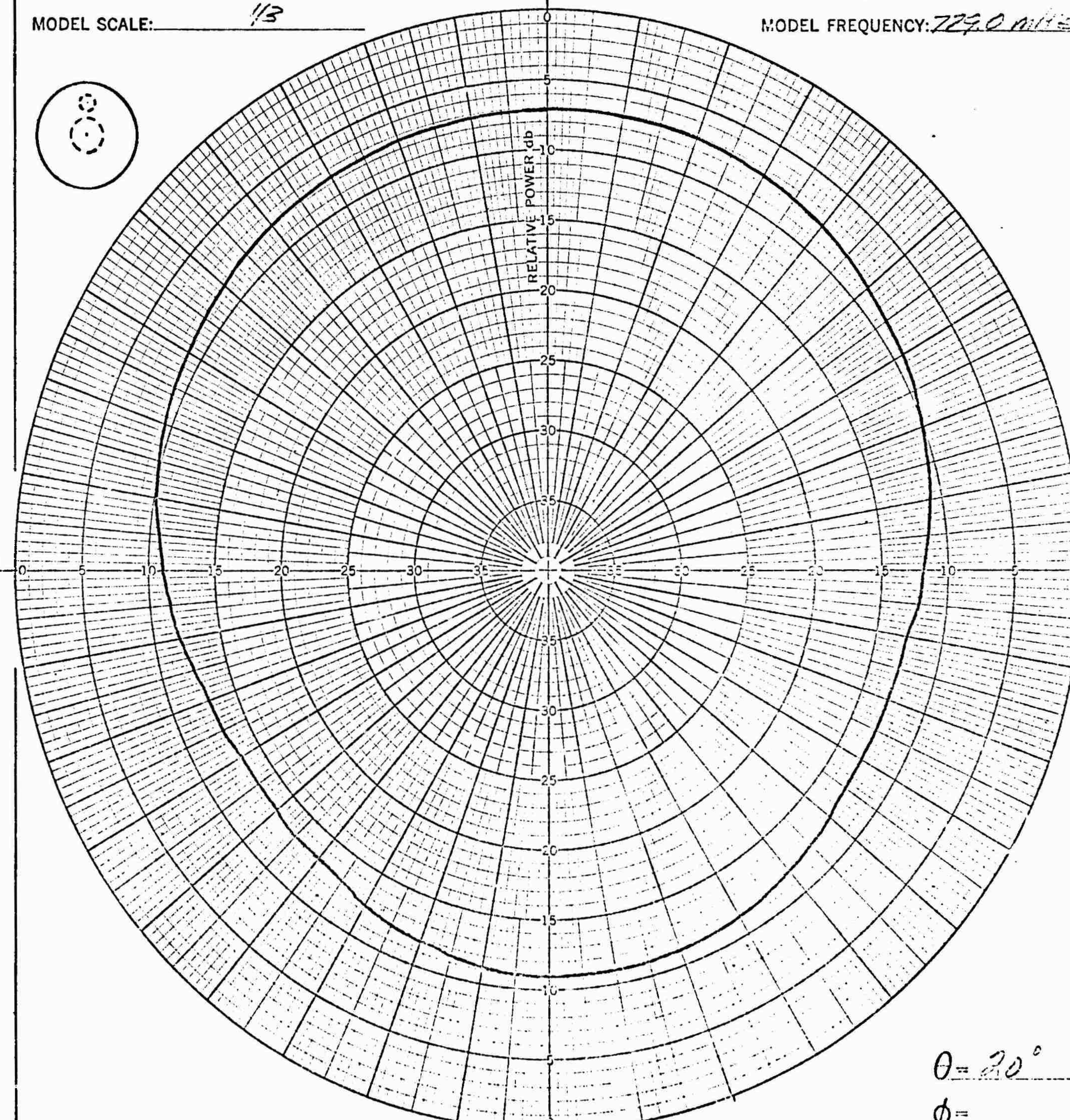
PLOTTED IN: RELATIVE POWER db

REMARKS:

TRANSMISSION DISTANCE: 600 ft

OBSERVER: EMECS DATE: 20-6-67

ANTENNA: NOSE STUB
VEHICLE: GEMINI B
ANTENNA LOCATION: NOSE
FULL SCALE FREQUENCY: 243.0 mHz
MODEL SCALE: 1/3
MODEL FREQUENCY: 729.0 mHz



θ = 20°
φ =

CONFIGURATION: XII

REMARKS:

INTEGRATOR COUNT: 2108
POLARIZATION: Eφ ___ Eθ ✓ OTHER:
PLOTTED IN: RELATIVE POWER db
TRANSMISSION DISTANCE: 500 ft
OBSERVER: EM ACS
DATE: 20-6-67

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PAGE 140

REPORT TR 058-ADA.03

MODEL 195B

ANTENNA: NOSE STUB

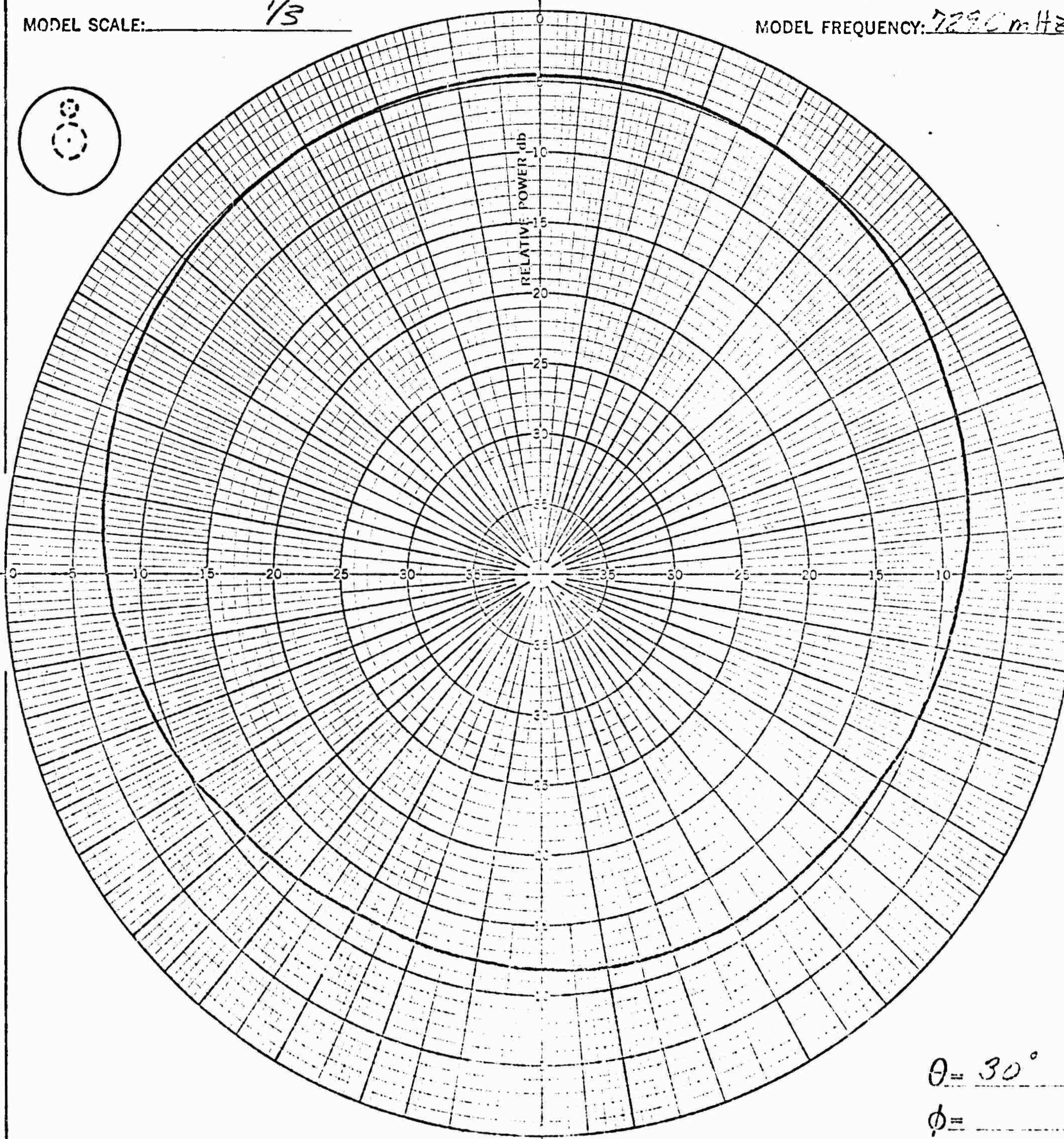
ANTENNA LOCATION: NOSE

MODEL SCALE: 1/3

VEHICLE: GEMINI B

FULL SCALE FREQUENCY: 243.0 mHz

MODEL FREQUENCY: 729.0 mHz



θ = 30°

ϕ =

CONFIGURATION: XII	INTEGRATOR COUNT: 3411
	POLARIZATION: Eϕ [ ] Eθ [✓] OTHER:
	PLOTTED IN: RELATIVE POWER db
REMARKS:	TRANSMISSION DISTANCE: 500 ft
	OBSERVER: EM & CS DATE: 20-6-63

MAC 231YL (7 MAY 64)

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PAGE 141

REPORT TR 058-ADA.03

MODEL 195B

ANTENNA: NOSE STUB

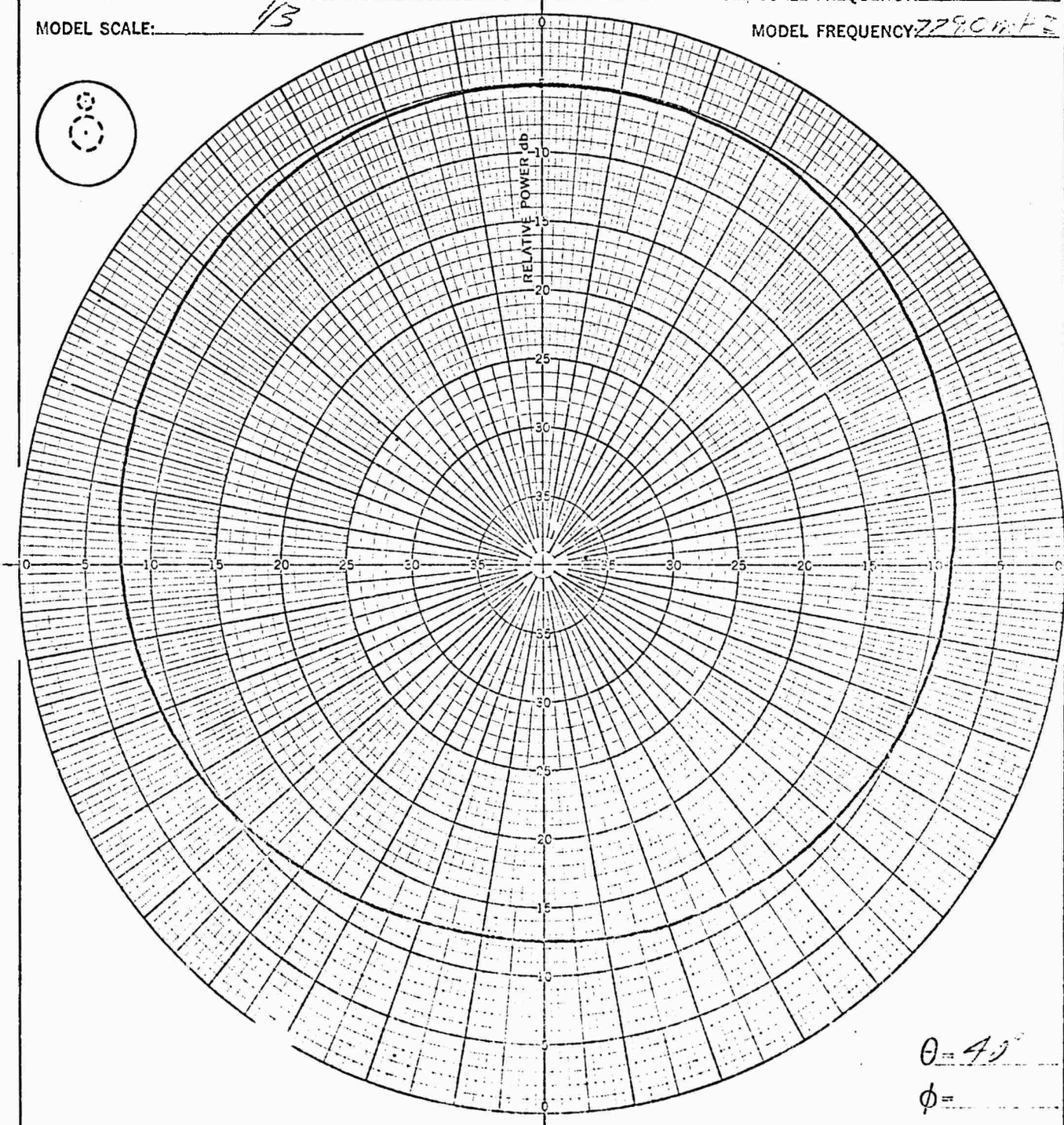
ANTENNA LOCATION: NOSE

MODEL SCALE: 1/3

VEHICLE: GEMINI B

FULL SCALE FREQUENCY: 228 mc

MODEL FREQUENCY: 228 mc



θ = 45°

ϕ = _____

CONFIGURATION: VII

INTEGRATOR COUNT: 32.05

POLARIZATION: Eϕ [ ] Eθ [✓] OTHER: _____

PLOTTED IN: RELATIVE POWER db

REMARKS: _____

TRANSMISSION DISTANCE: 500 ft

OBSERVER: _____ DATE: _____

MAC 251YL (7 MAY 64)

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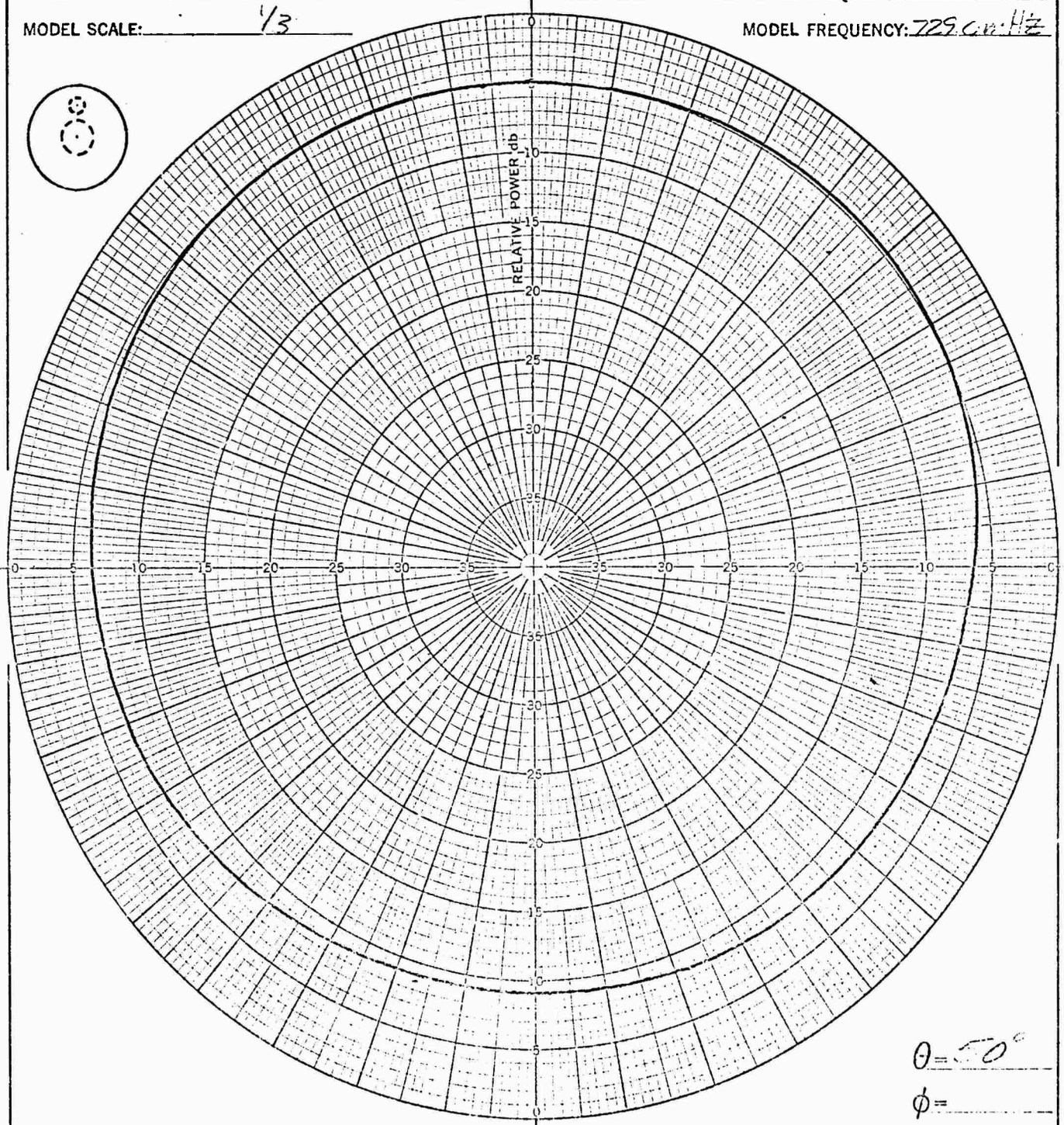
PAGE 142
REPORT TR 058-ADA.03
MODEL 195B

ANTENNA: NOSE STUB
ANTENNA LOCATION: NOSE
MODEL SCALE: 1/3

VEHICLE: GEMINI 5
FULL SCALE FREQUENCY: 243.0 mHz
MODEL FREQUENCY: 729 mHz



θ = 50°
ϕ =

CONFIGURATION: XII

REMARKS:

INTEGRATOR COUNT: 4697
POLARIZATION: Eϕ [ ] Eθ [X] OTHER:
PLOTTED IN: RELATIVE POWER db
TRANSMISSION DISTANCE: 500 ft.
OBSERVER: PM 4:15 DATE: 20-6-67

DATE _____

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PAGE 143

REPORT TR 058-ADA.03

MODEL 195B

ANTENNA: NOSE STUB

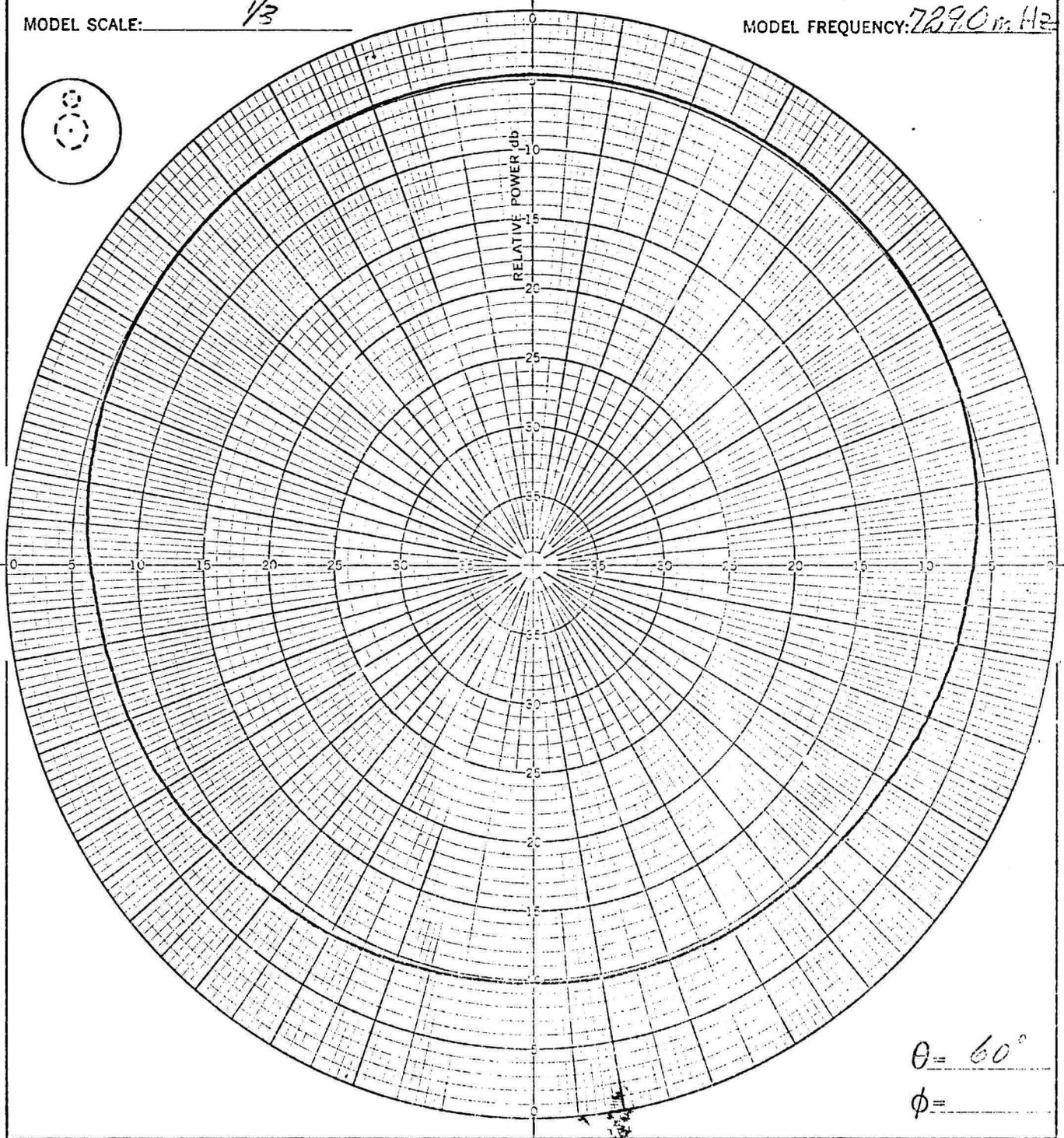
ANTENNA LOCATION: NOSE

MODEL SCALE: 1/3

VEHICLE: GEMINI B

FULL SCALE FREQUENCY: 243.0 mHz

MODEL FREQUENCY: 729.0 mHz



θ = 60°

ϕ = _____

CONFIGURATION: XII

REMARKS: _____

INTEGRATOR COUNT: 4550

POLARIZATION: Eϕ ☐ Eθ ☑ OTHER: _____

PLOTTED IN: RELATIVE POWER db

TRANSMISSION DISTANCE: 500 ft

OBSERVER: EM & CS DATE: 26-6-67

MAC 2811YL (7 MAY 64)

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PAGE 144

REPORT TR 058-ADA.03

MODEL 195B

ANTENNA: NOSE STUB

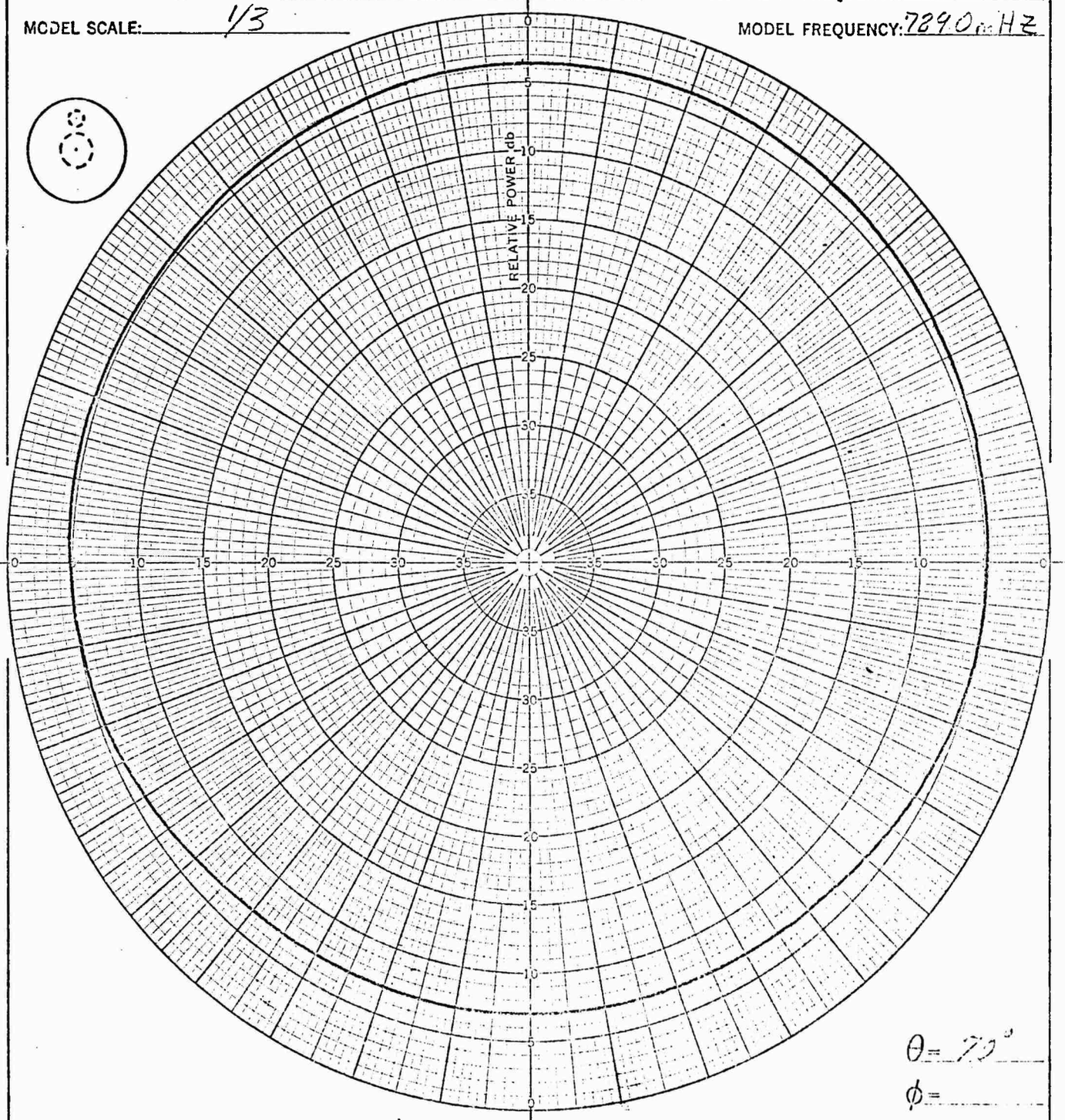
ANTENNA LOCATION: NOSE

MODEL SCALE: 1/3

VEHICLE: GEMINI B

FULL SCALE FREQUENCY: 243.0 mHz

MODEL FREQUENCY: 729.0 mHz



θ = 75°

ϕ =

CONFIGURATION: XII

INTEGRATOR COUNT: 6 1 3 9

POLARIZATION: Eϕ [ ] Eθ [✓] OTHER:

PLOTTED IN: RELATIVE POWER db

REMARKS:

TRANSMISSION DISTANCE: 500 ft

OBSERVER: FH 203 DATE: 29-5-67

MAC 231YL 17 MAY 66

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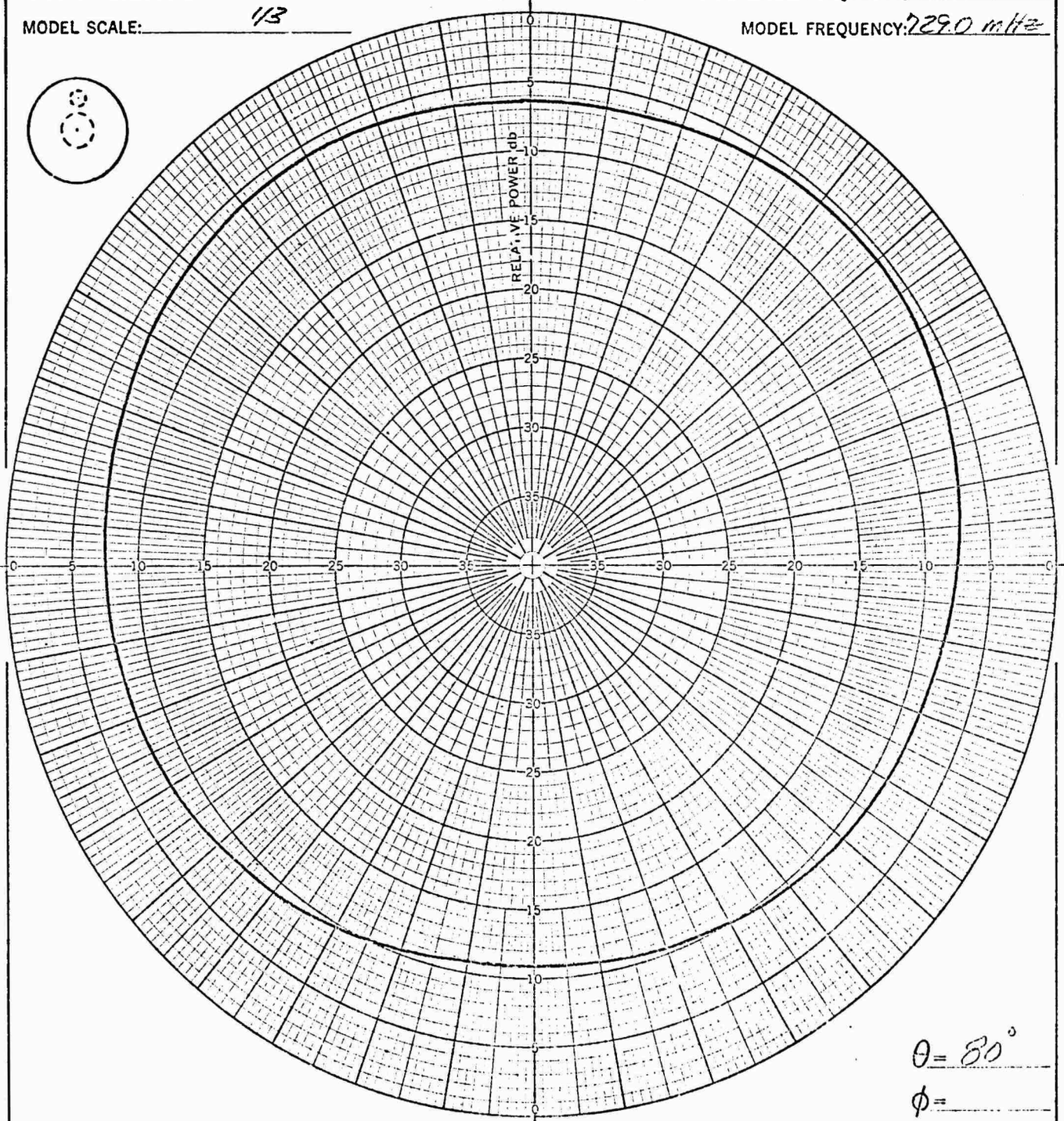
PAGE 145
REPORT TR 058-ADA.03
MODEL 195B

ANTENNA: NOSE STUB
ANTENNA LOCATION: NOSE
MODEL SCALE: 1/3

VEHICLE: GEMINI B
FULL SCALE FREQUENCY: 243.0 mHz
MODEL FREQUENCY: 729.0 mHz



θ = 80°
ϕ =

CONFIGURATION: XII

REMARKS:

INTEGRATOR COUNT: 3595
POLARIZATION: Eϕ [ ] Eθ [✓] OTHER:
PLOTTED IN: RELATIVE POWER db
TRANSMISSION DISTANCE: 500 ft
OBSERVER: EMCS DATE: 10-6-67

MAC 22 TYL (7 MAY 64)

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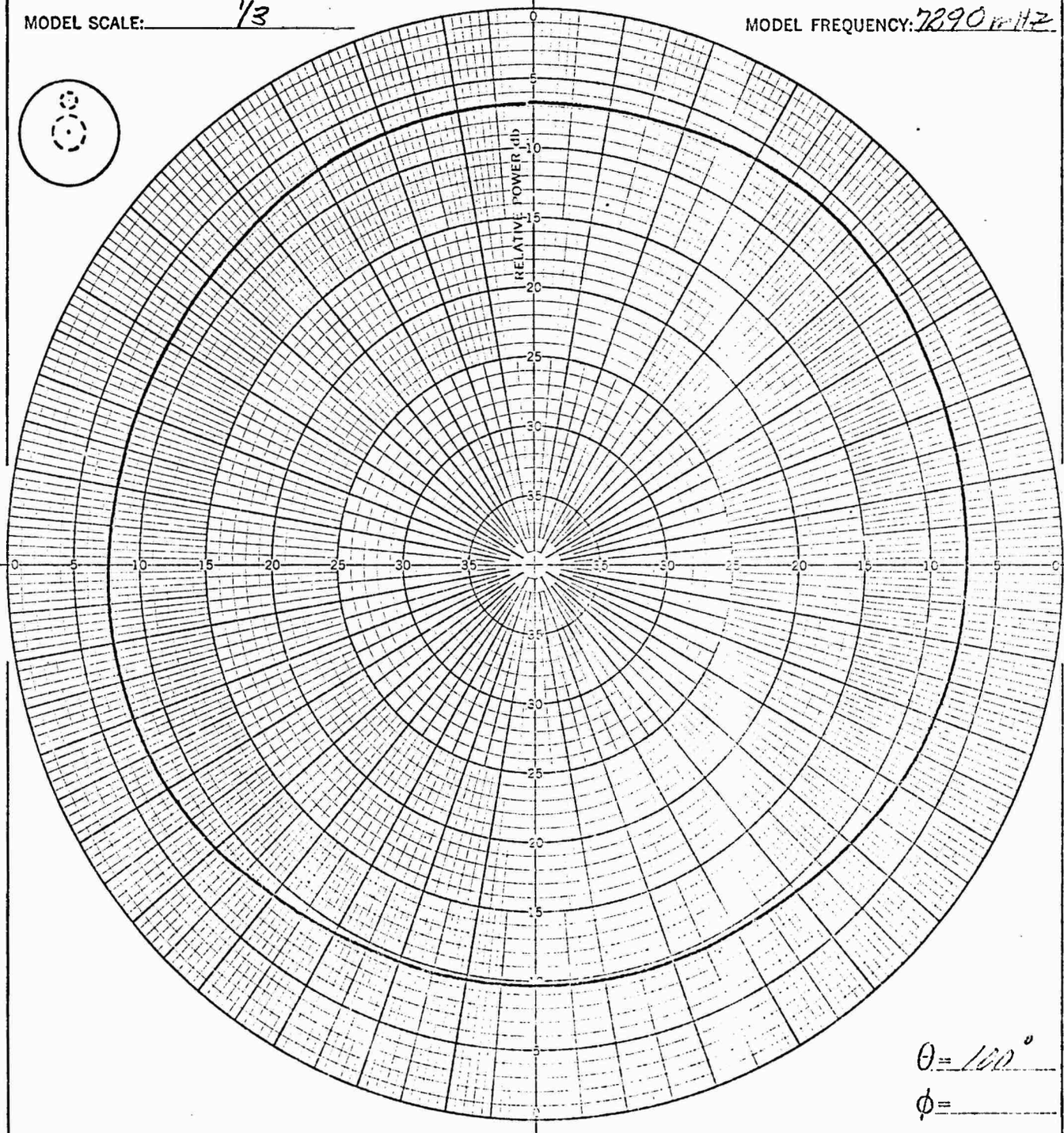
PAGE 146
REPORT TR 058-ADA.03
MODEL 195B

ANTENNA: NOSE STUB
ANTENNA LOCATION: NOSE
MODEL SCALE: 1/3

VEHICLE: GEMINI B
FULL SCALE FREQUENCY: 243.0 mHz
MODEL FREQUENCY: 729.0 mHz



θ = 180°
ϕ =

CONFIGURATION: XII

INTEGRATOR COUNT: 3403
POLARIZATION: Eϕ ☐ Eθ ☑ OTHER:
PLOTTED IN: RELATIVE POWER db
TRANSMISSION DISTANCE: 500 ft
OBSERVER: EM & CS DATE: 30-6-67

REMARKS:

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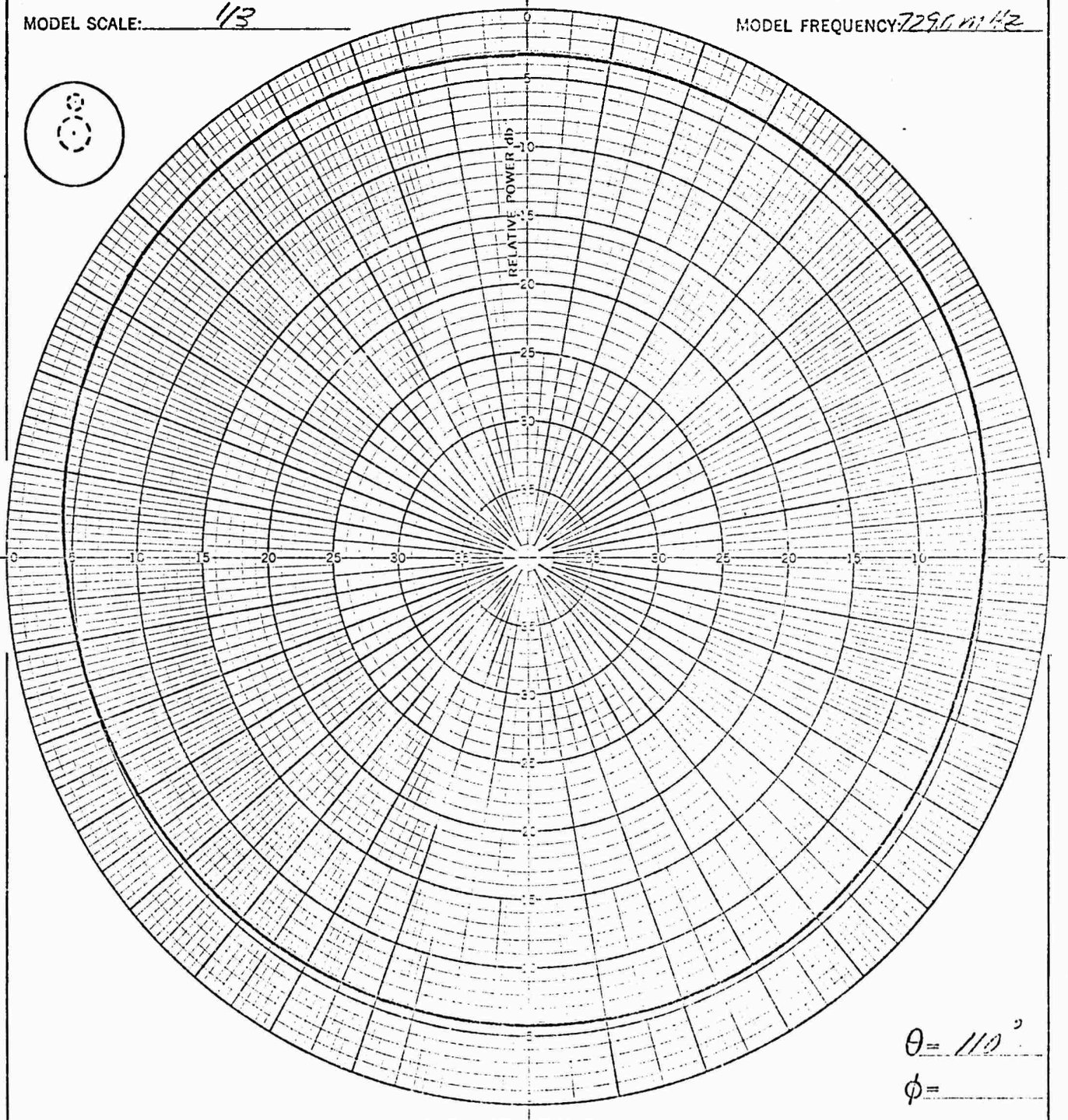
PAGE 147
REPORT TR 058-ADA.03
MODEL 195B

ANTENNA: NOSE STUB
ANTENNA LOCATION: NOSE
MODEL SCALE: 1/3

VEHICLE: GEMINI B
FULL SCALE FREQUENCY 243 mHz
MODEL FREQUENCY: 729 mHz



θ = 110°
φ =

CONFIGURATION: XII

INTEGRATOR COUNT: 7158

POLARIZATION: Eφ [ ] Eθ [✓] OTHER:

PLOTTED IN: RELATIVE POWER db

REMARKS:

TRANSMISSION DISTANCE: 500 ft.

OBSERVER: EMSCS DATE: 24-6-67

MAC 231YL (7 MAY 64)

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MCDONNELL
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PAGE 148

REPORT TR 058-ADA.03

MODEL 195B

ANTENNA: NOSE STUB

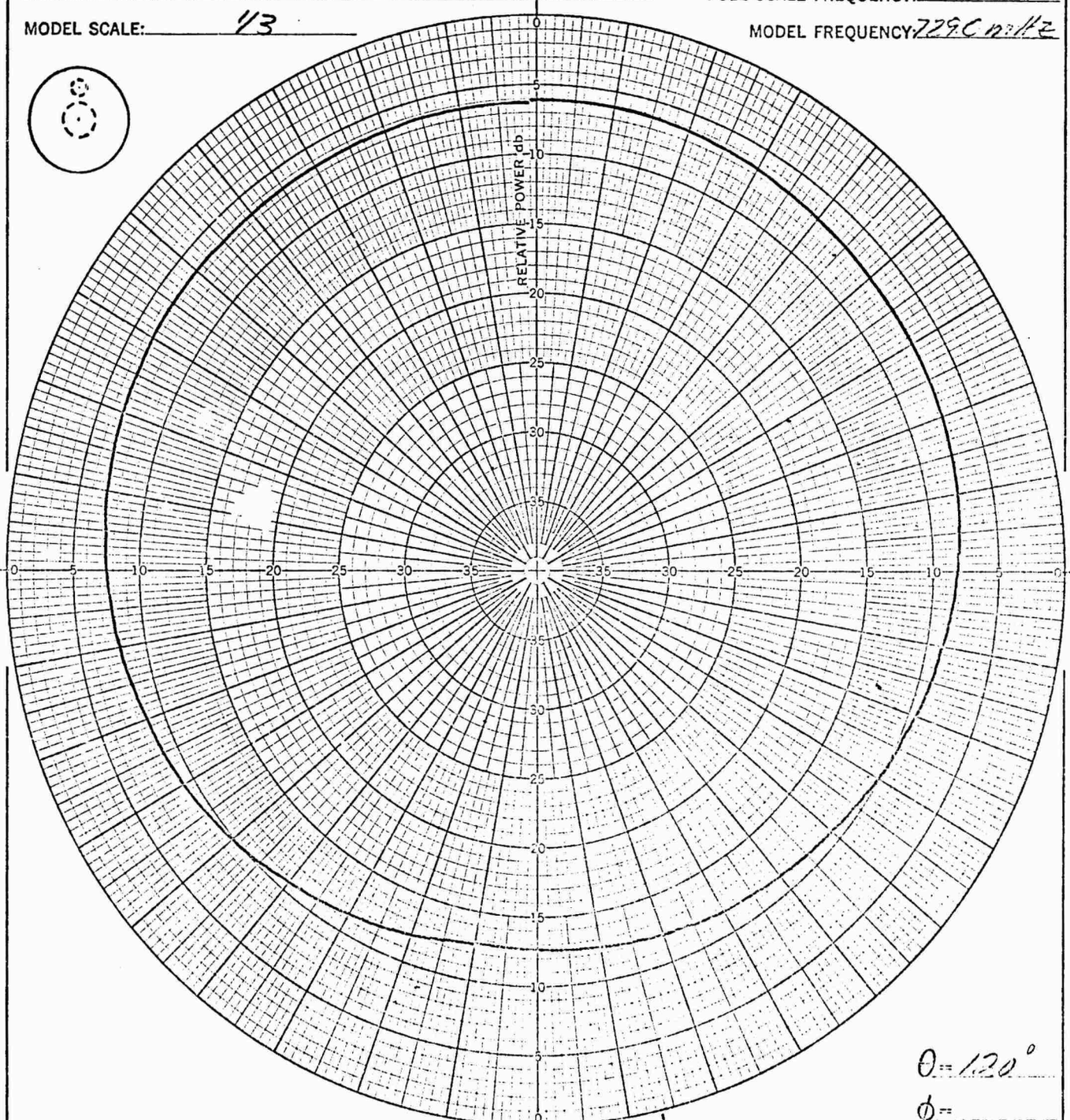
ANTENNA LOCATION: NOSE

MODEL SCALE: 1/3

VEHICLE: GEMINI B

FULL SCALE FREQUENCY: 243.0 mHz

MODEL FREQUENCY: 729.0 mHz



θ = 120°

ϕ = _____

CONFIGURATION: XII

REMARKS: _____

INTEGRATOR COUNT: 3116

POLARIZATION: Eϕ [ ] Eθ [✓] OTHER: _____

PLOTTED IN: RELATIVE POWER db

TRANSMISSION DISTANCE: 500 ft

OBSERVER: FH & CS DATE: 2-[illegible]

MAC 291YL (7 MAY 63)

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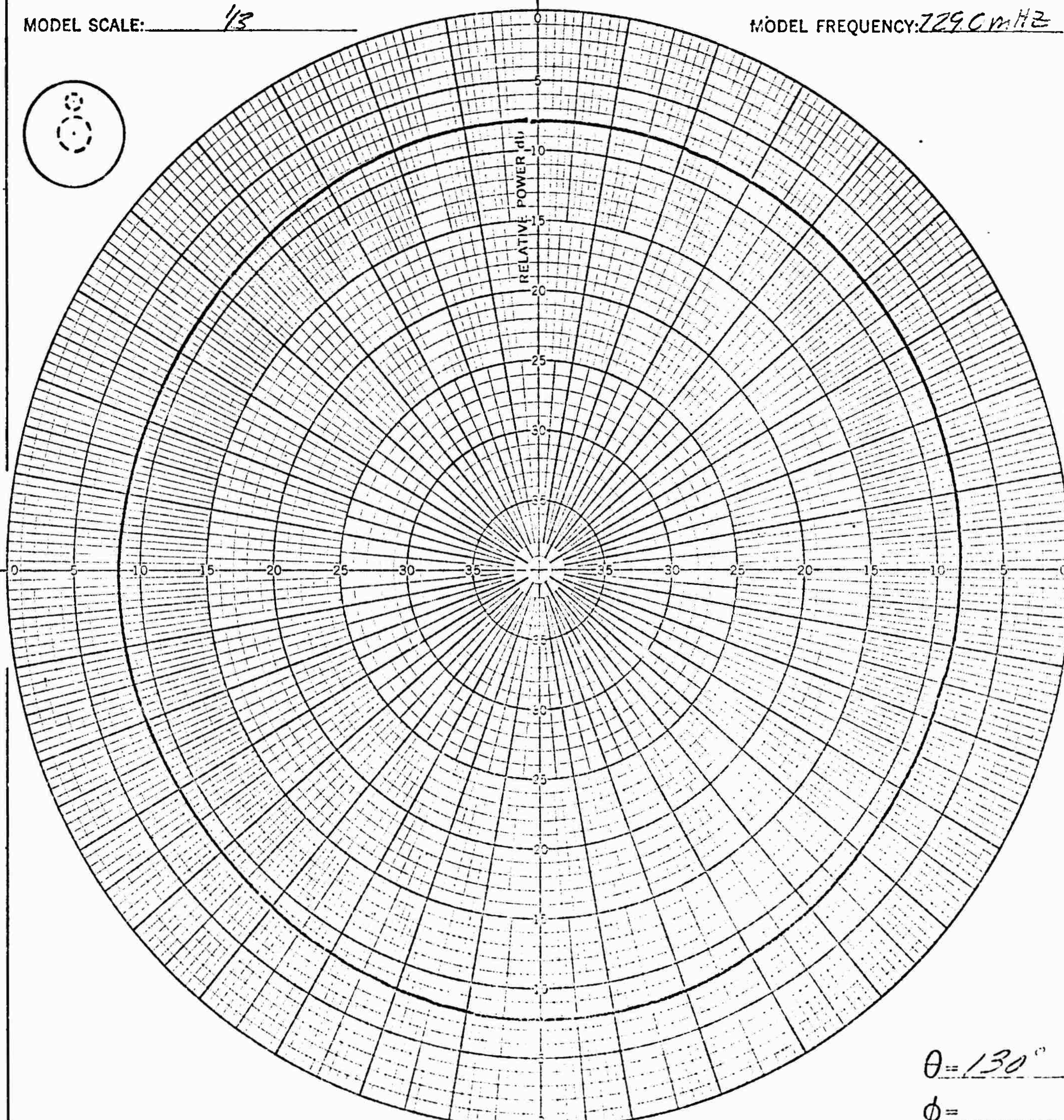
PAGE 149
REPORT TR 058-ADA.03
MODEL 195B

ANTENNA: NOSE STUB
VEHICLE: GEMINI B
ANTENNA LOCATION: NOSE
FULL SCALE FREQUENCY: 243.0 mHz
MODEL SCALE: 1/3
MODEL FREQUENCY: 729.0 mHz



θ = 130°
φ =

CONFIGURATION: XII

REMARKS:

INTEGRATOR COUNT: 3060
POLARIZATION: Eφ [ ] Eθ [✓] OTHER:
PLOTTED IN: RELATIVE POWER db
TRANSMISSION DISTANCE: 500 ft.
OBSERVER: F.W.B. C.S.
DATE: 20-5-67

MAC 231YL (7 MAY 64)
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PAGE 150

REPORT TR 058-ADA.03

MODEL 195B

ANTENNA: NOSE STUB

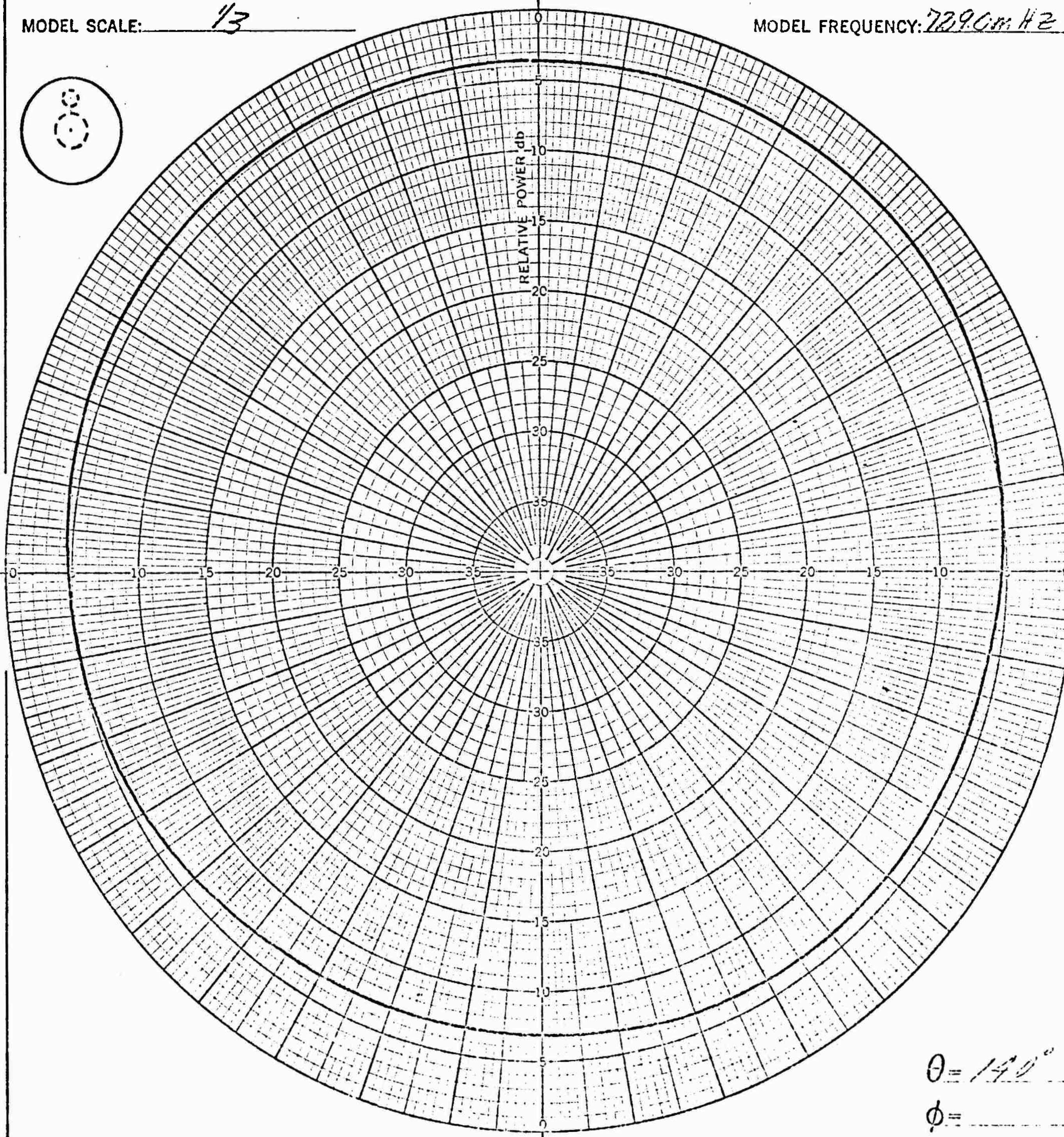
ANTENNA LOCATION: NOSE

MODEL SCALE: 1/3

VEHICLE: GEMINI B

FULL SCALE FREQUENCY: 243.0 mHz

MODEL FREQUENCY: 729.0 mHz



θ = 140°

φ =

CONFIGURATION: XII	INTEGRATOR COUNT: 6436
	POLARIZATION: Eφ [ ] Eθ [✓] OTHER:
	PLOTTED IN: RELATIVE POWER db
REMARKS:	TRANSMISSION DISTANCE: 500 ft
	OBSERVER: FM & CB DATE: 10-6-...

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PAGE 151

REPORT TR 058-ADA.03

MODEL 195B

ANTENNA: NOSE STUB

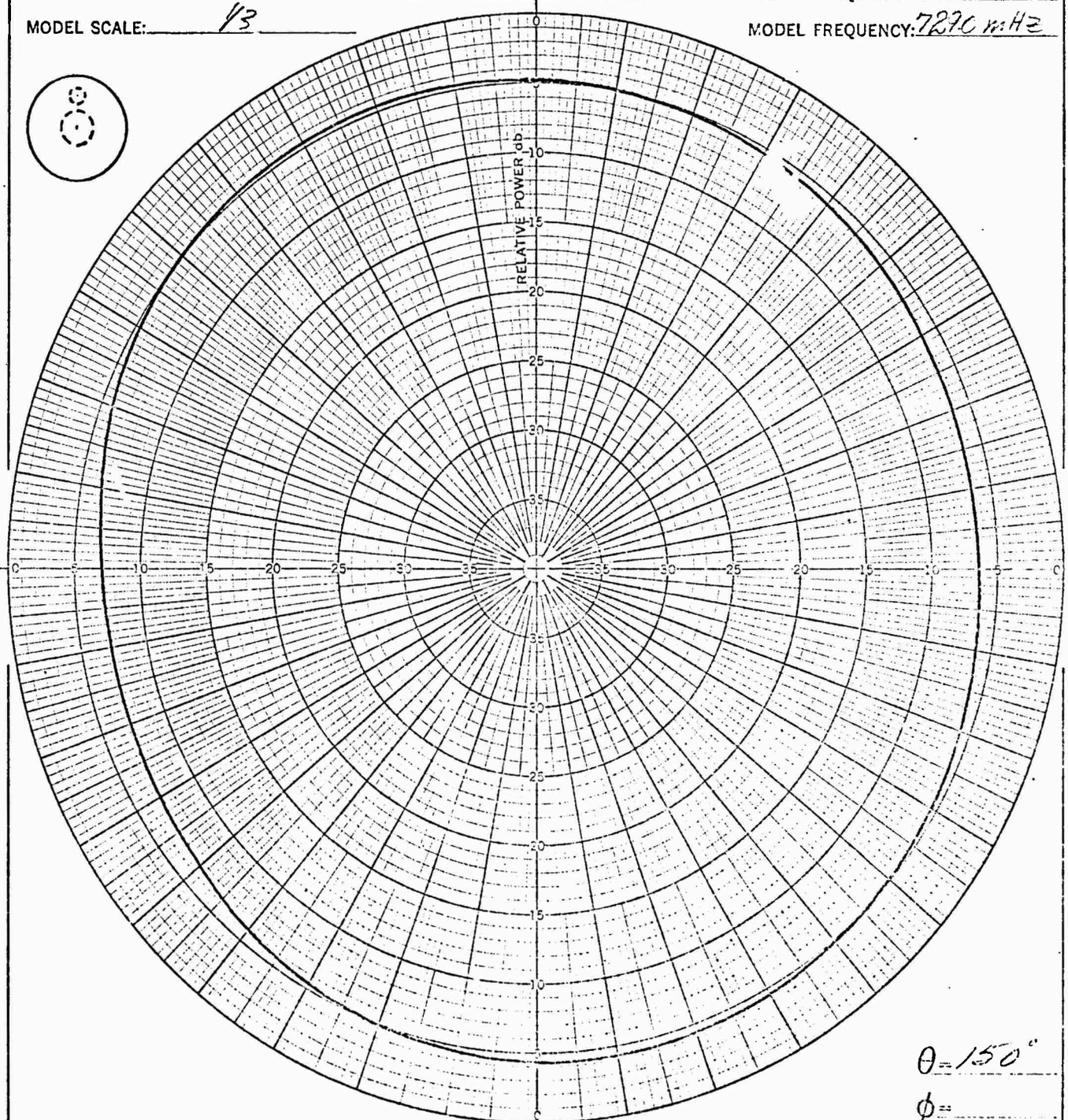
ANTENNA LOCATION: NOSE

MODEL SCALE: 1/3

VEHICLE: GEMINI 8

FULL SCALE FREQUENCY: 2320 mHz

MODEL FREQUENCY: 7270 mHz



θ = 150°

ϕ =

CONFIGURATION: XII

REMARKS:

INTEGRATOR COUNT: 56 46

POLARIZATION: Eϕ [ ] Eθ [✓] OTHER:

PLOTTED IN: RELATIVE POWER db

TRANSMISSION DISTANCE: 200 ft

OBSERVER: EM & CS DATE: 20-6-67

MAC 231YL (7 MAY 64)

K & E CO.

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ST. LOUIS, MISSOURI

PAGE 152

REPORT TR 058-ADA.03

MODEL 195B

ANTENNA: NOSE STUB

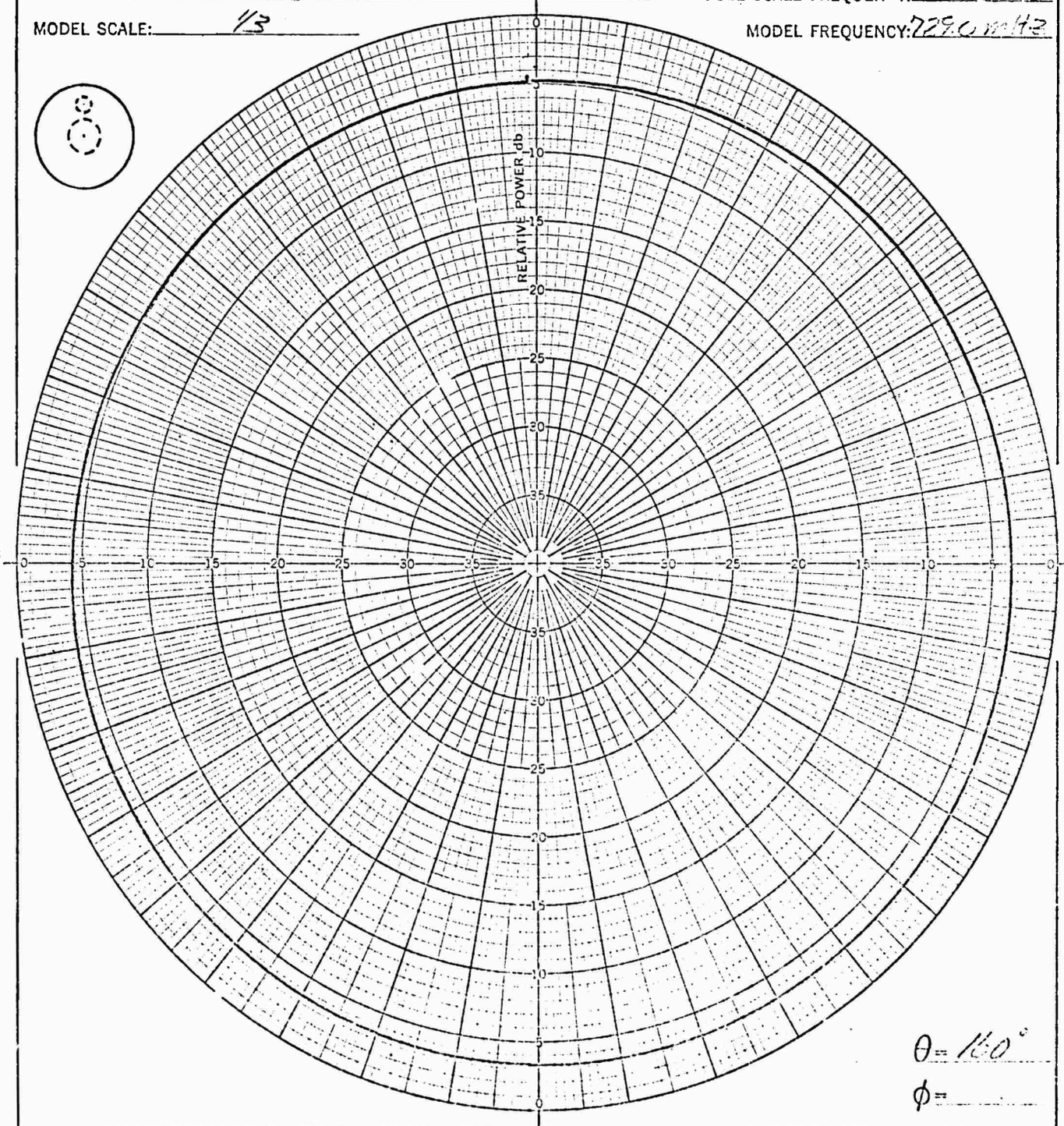
ANTENNA LOCATION: NOSE

MODEL SCALE: 1/3

VEHICLE: GEMINI E

FULL SCALE FREQUENCY: 2430 mHz

MODEL FREQUENCY: 7290 mHz



θ = 160°

ϕ = _____

CONFIGURATION: XII

REMARKS:

INTEGRATOR COUNT: 7878

POLARIZATION: Eϕ [ ] Eθ [✓] OTHER:

PLOTTED IN: RELATIVE POWER db

TRANSMISSION DISTANCE: 500 ft

OBSERVER: FM & CS DATE: 22-5-6[illegible]

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MCDONNELL
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PAGE 153

REPORT TR 058-ADA.03

MODEL 195B

ANTENNA: NOSE STUB

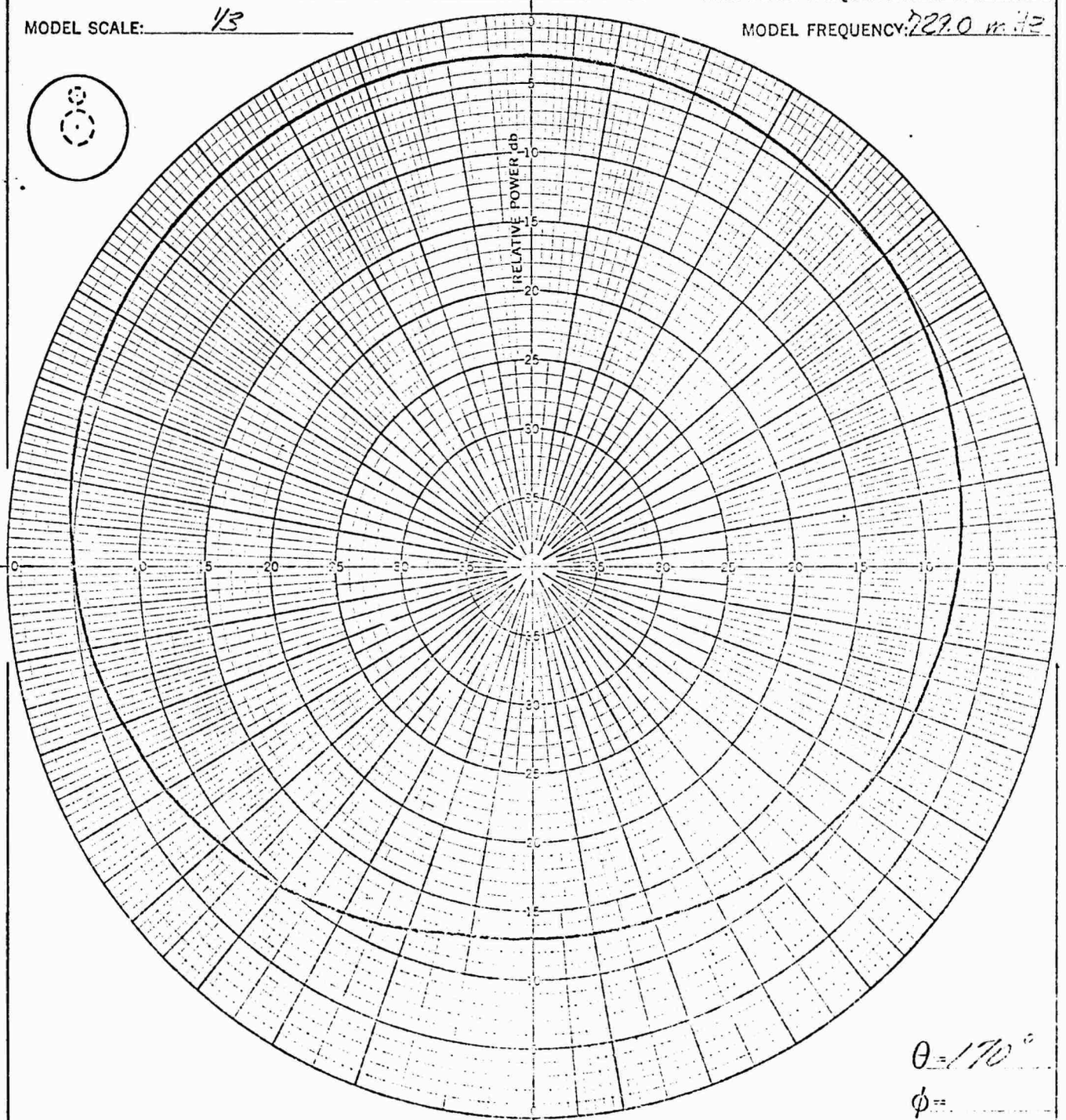
ANTENNA LOCATION: NOSE

MODEL SCALE: 1/3

VEHICLE: GEMINI B

FULL SCALE FREQUENCY: 243.0 mHz

MODEL FREQUENCY: 729.0 mHz



θ = 170°

ϕ =

CONFIGURATION: III

REMARKS:

INTEGRATOR COUNT: 5083

POLARIZATION: Eϕ ___ Eθ ✓ OTHER:

PLOTTED IN: RELATIVE POWER db

TRANSMISSION DISTANCE: 500 ft

OBSERVER: [illegible] DATE: [illegible]

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PAGE 154

REPORT TR 058-ADA.03

MODEL 195B

ANTENNA: NOSE STUB

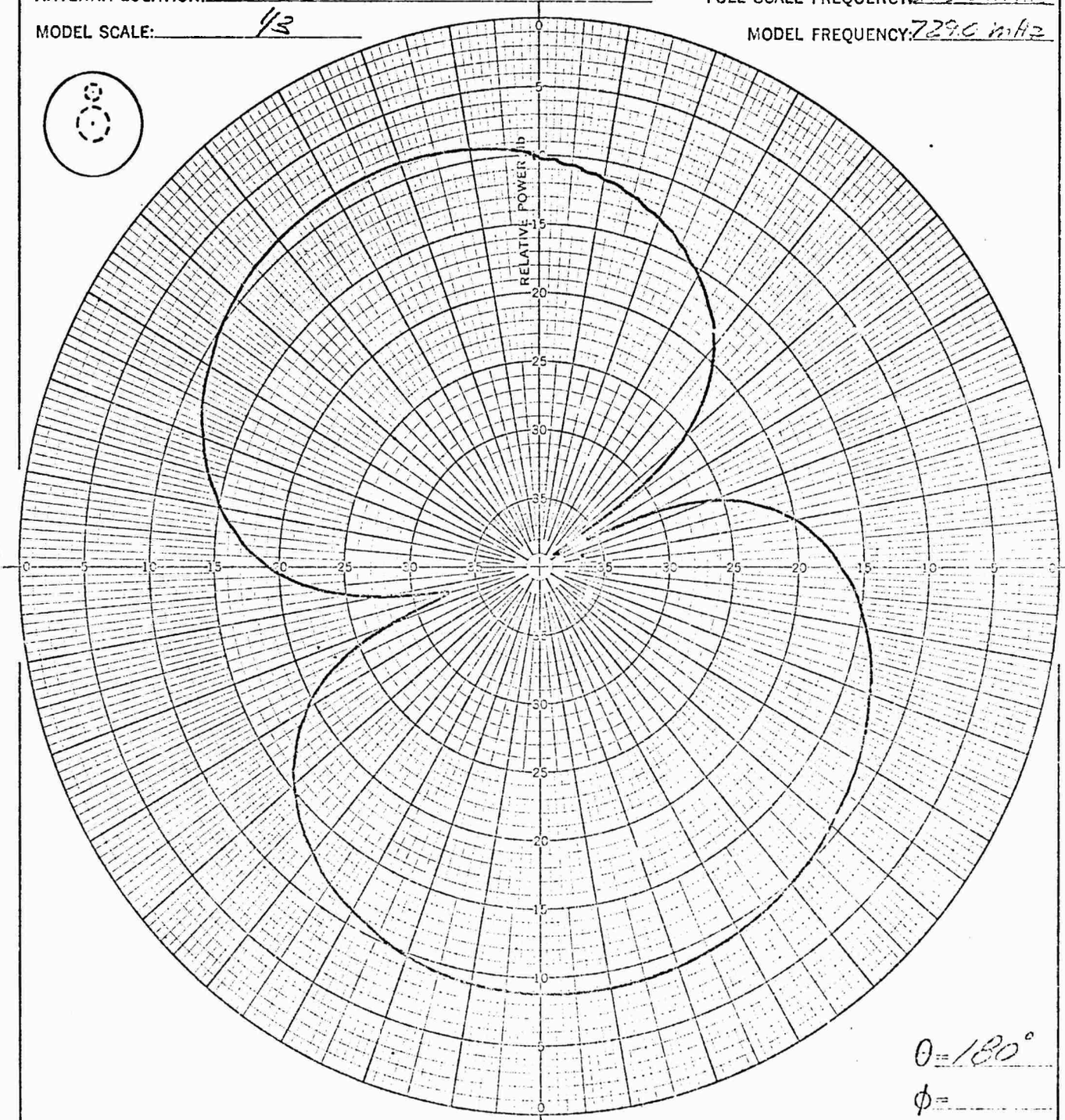
ANTENNA LOCATION: NOSE

MODEL SCALE: 1/3

VEHICLE: GEMINI B

FULL SCALE FREQUENCY: 240 mHz

MODEL FREQUENCY: 729.6 mHz



θ = 180°

ϕ =

CONFIGURATION: XII

REMARKS:

INTEGRATOR COUNT:

POLARIZATION: Eϕ [ ] Eθ [✓] OTHER:

PLOTTED IN: RELATIVE POWER db

TRANSMISSION DISTANCE: 300 ft

OBSERVER: EM & CS DATE: 20-6-67

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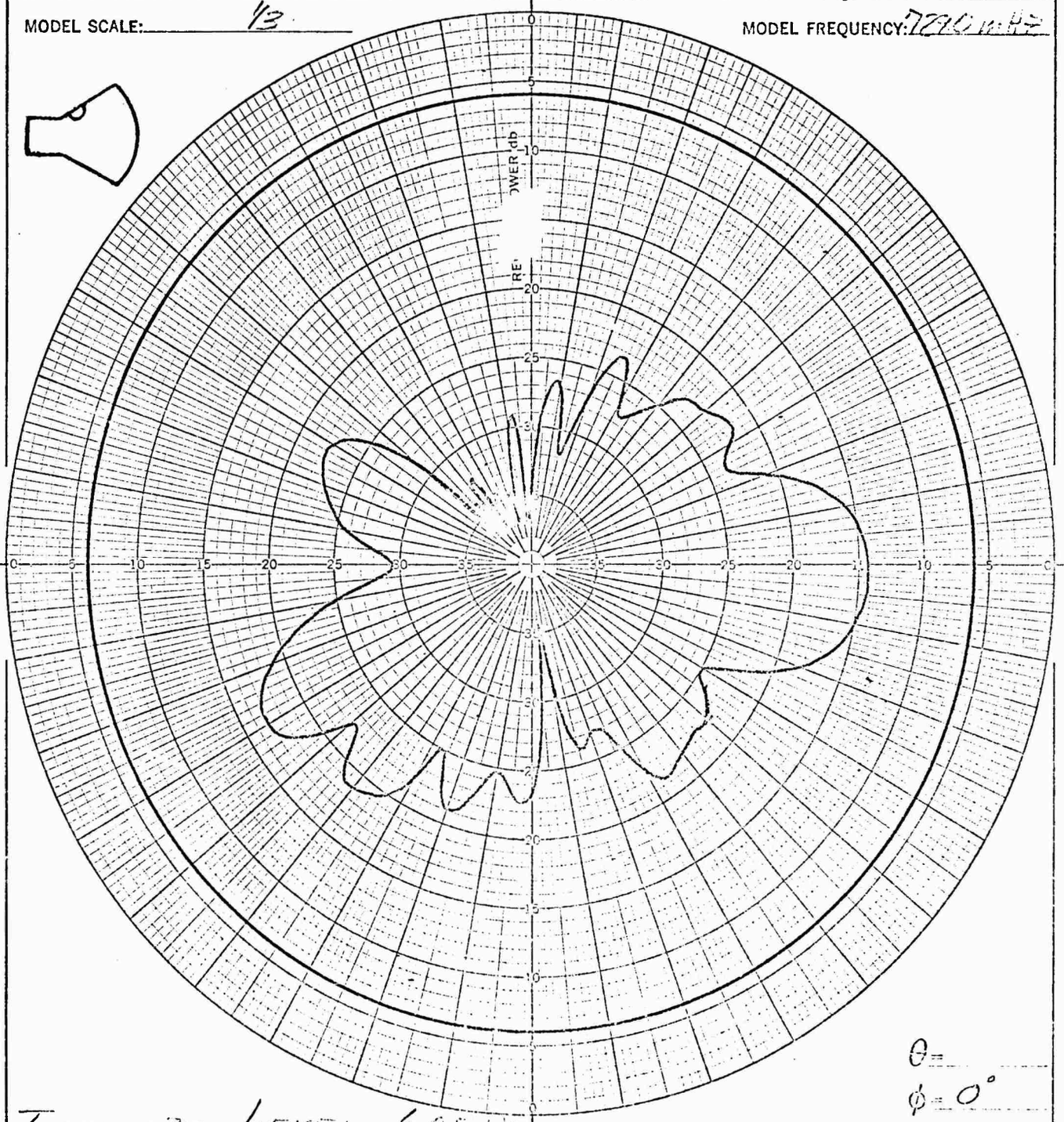
PAGE 155
REPORT TR 058-ADA.03
MODEL 195B

ANTENNA: NOSE STUB
ANTENNA LOCATION: NOSE
MODEL SCALE: 1/3

VEHICLE: GEMINI B
FULL SCALE FREQUENCY: 2420 mHz
MODEL FREQUENCY: 7260 mHz



Isotropic Level - 6.05 dB

CONFIGURATION: XII

REMARKS: ELIMINATED SIM. UNIT

INTEGRATOR COUNT:

POLARIZATION: Eφ [—] Eθ [ ] OTHER:

PLOTTED IN: RELATIVE POWER db

TRANSMISSION DISTANCE: 200 ft

OBSERVER: [illegible] DATE: [illegible]

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PAGE 156

REPORT TR 058-ADA.03

MODEL 195B

ANTENNA: NOSE STUB

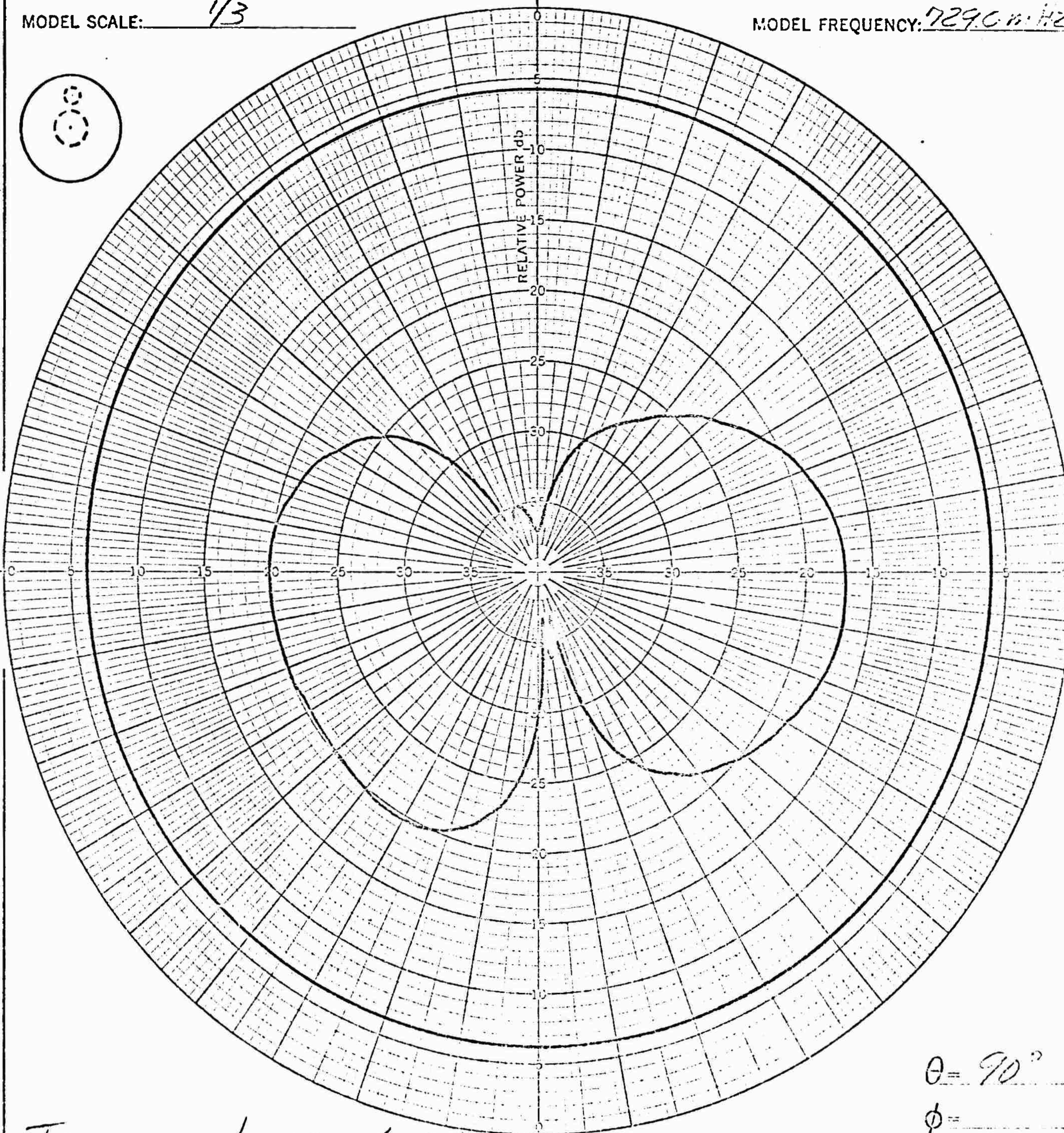
ANTENNA LOCATION: NOSE

MODEL SCALE: 1/3

VEHICLE: GEMINI B

FULL SCALE FREQUENCY: 243 Gm Hz

MODEL FREQUENCY: 729 Gm Hz



θ = 90°

φ =

ISOTROPIC LEVEL -6.05 db

CONFIGURATION: 7/11

INTEGRATOR COUNT: 0138

POLARIZATION: Eφ ✓ Eθ ☐ OTHER:

PLOTTED IN: RELATIVE POWER db

REMARKS: Circles Level -3 db Line

TRANSMISSION DISTANCE: 50 ft

OBSERVER: Ellis

DATE:

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PAGE 157

REPORT TR 058-ADA.03

MODEL 195B

ANTENNA: NOSE STUB

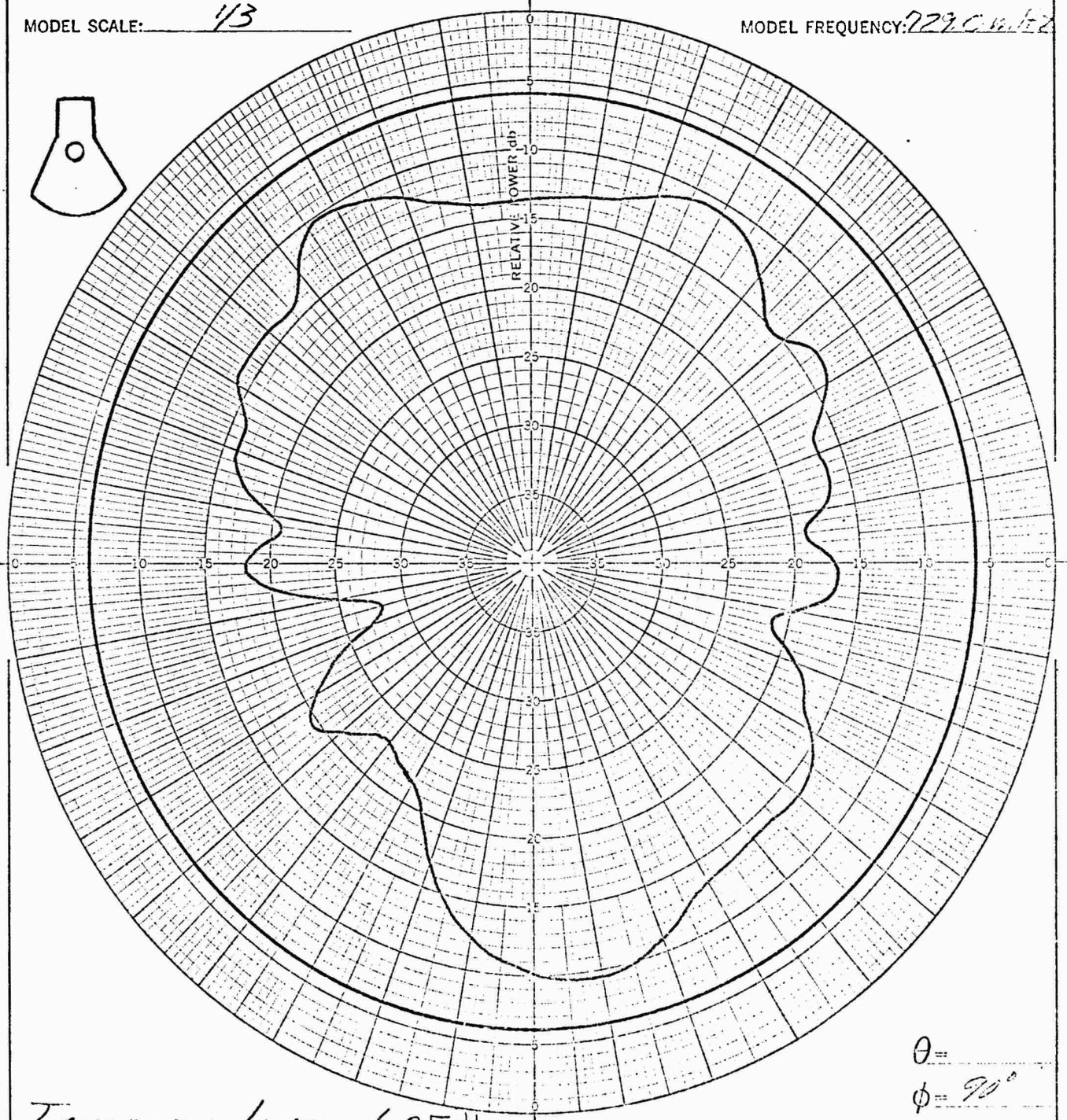
ANTENNA LOCATION: NOSE

MODEL SCALE: 1/3

VEHICLE: GEMINI B

FULL SCALE FREQUENCY: 248 cm Hz

MODEL FREQUENCY: 223 cm Hz



θ =

ϕ = 90°

Isotropic Level - 6.05db

CONFIGURATION: XMT

REMARKS:

INTEGRATOR COUNT:

POLARIZATION: Eϕ [/] Eθ [ ] OTHER:

PLOTTED IN: RELATIVE POWER db

TRANSMISSION DISTANCE: 500 ft

OBSERVER: ENGLES DATE: 20-6-67

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MCDONNELL
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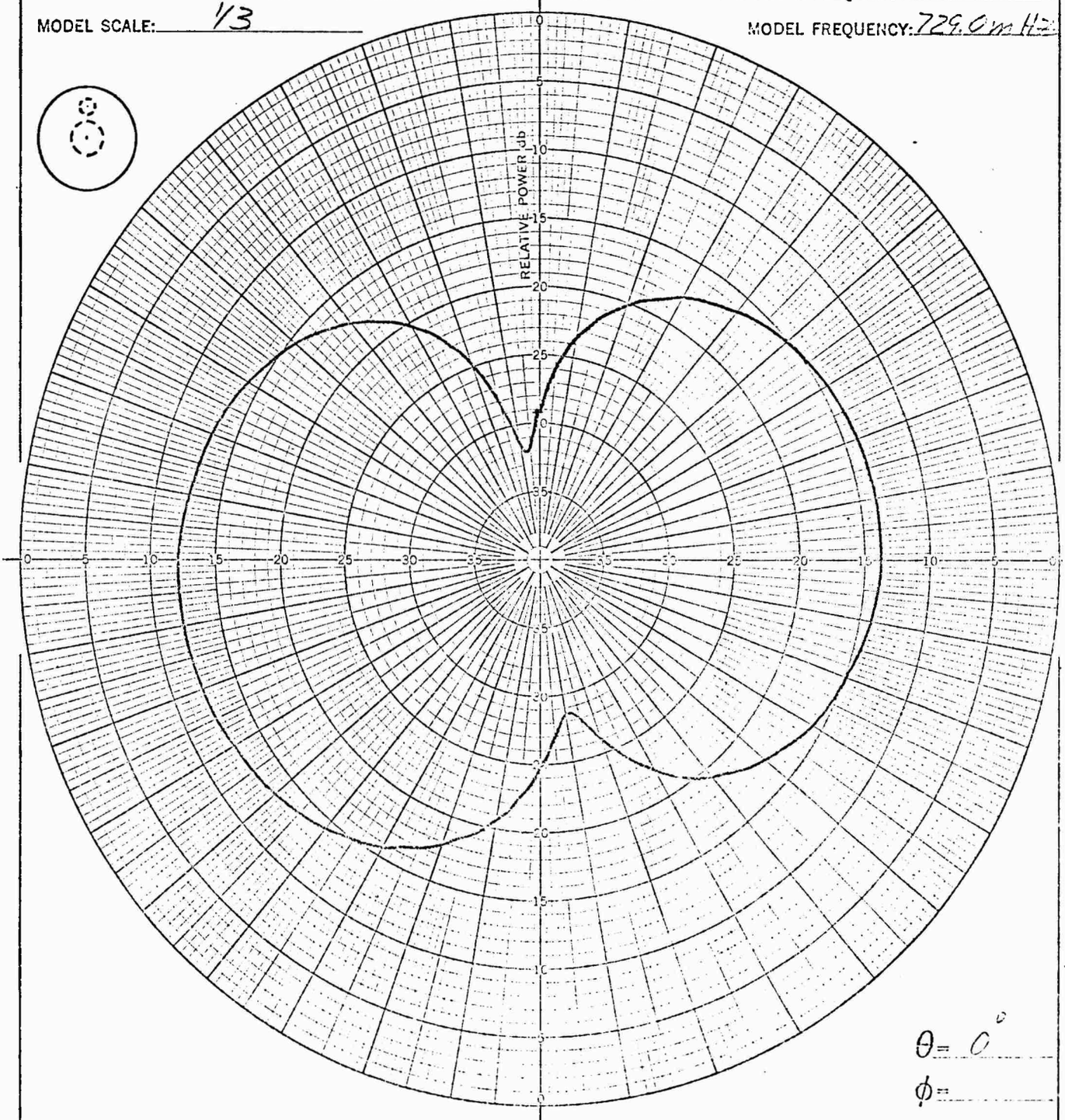
PAGE 158
REPORT TR 058-ADA.03
MODEL 195B

ANTENNA: NOSE STUB
ANTENNA LOCATION: NOSE
MODEL SCALE: 1/3

VEHICLE: GEMINI B
FULL SCALE FREQUENCY: 243.0 mHz
MODEL FREQUENCY: 729.0 mHz



CONFIGURATION: XII

REMARKS:

INTEGRATOR COUNT:
POLARIZATION: Eφ [—] Eθ [ ] OTHER:
PLOTTED IN: RELATIVE POWER db
TRANSMISSION DISTANCE: 500 ft.
OBSERVER: EM LES DATE: 2[illegible]

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PAGE 159

REPORT TR 058-ADA.03

MODEL 195B

ANTENNA: NOSE STUB

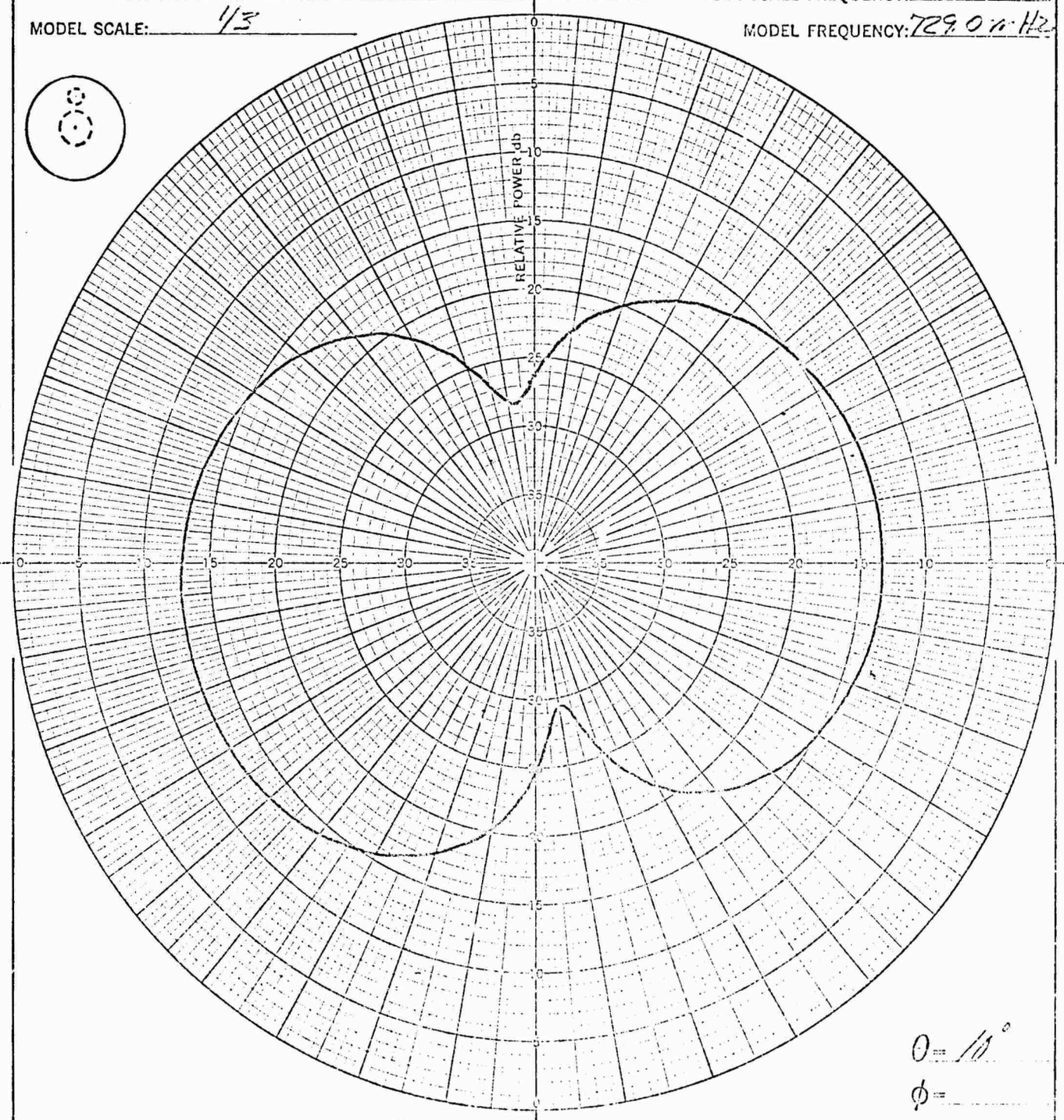
ANTENNA LOCATION: NOSE

MODEL SCALE: 1/3

VEHICLE: GEMINI B

FULL SCALE FREQUENCY: 243.0 m-Hz

MODEL FREQUENCY: 729.0 m-Hz



θ = 10°

ϕ =

CONFIGURATION: XII

REMARKS:

INTEGRATOR COUNT:

POLARIZATION: Eϕ [✓] Eθ [ ] OTHER:

PLOTTED IN: RELATIVE POWER db

TRANSMISSION DISTANCE: 500 ft.

OBSERVER: [illegible] DATE: [illegible]

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PAGE 160

REPORT TR 058-ADA.03

MODEL 195B

ANTENNA: WEST STUB

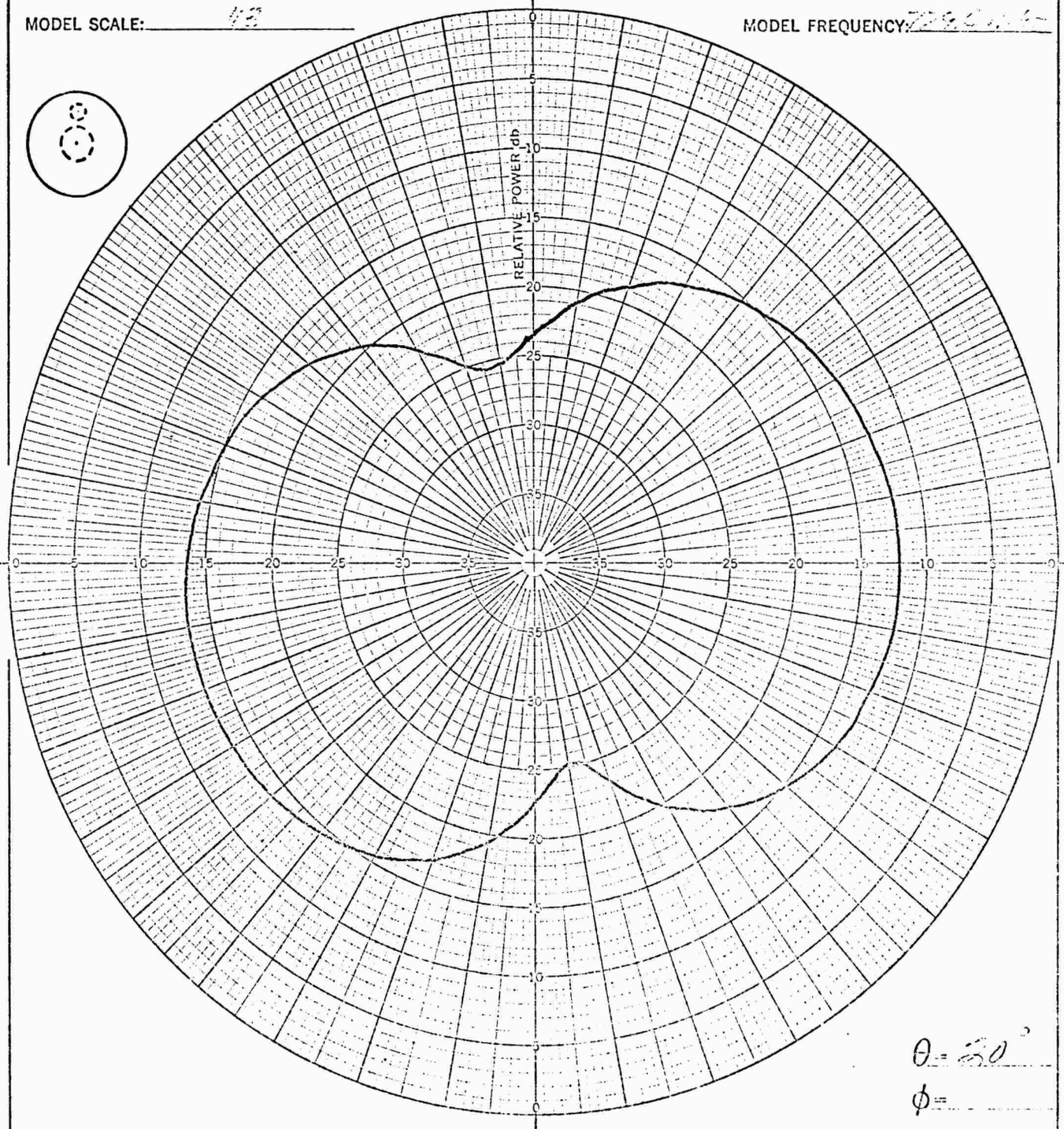
ANTENNA LOCATION: NOSE

MODEL SCALE: 1/8

VEHICLE:

FULL SCALE FREQUENCY:

MODEL FREQUENCY:



θ = 90°

ϕ =

CONFIGURATION: FW

REMARKS:

INTEGRATOR COUNT: 0579

POLARIZATION: Eϕ [✓] Eθ [ ] OTHER:

PLOTTED IN: RELATIVE POWER db

TRANSMISSION DISTANCE: FIELD

OBSERVER: FIELDS DATE:

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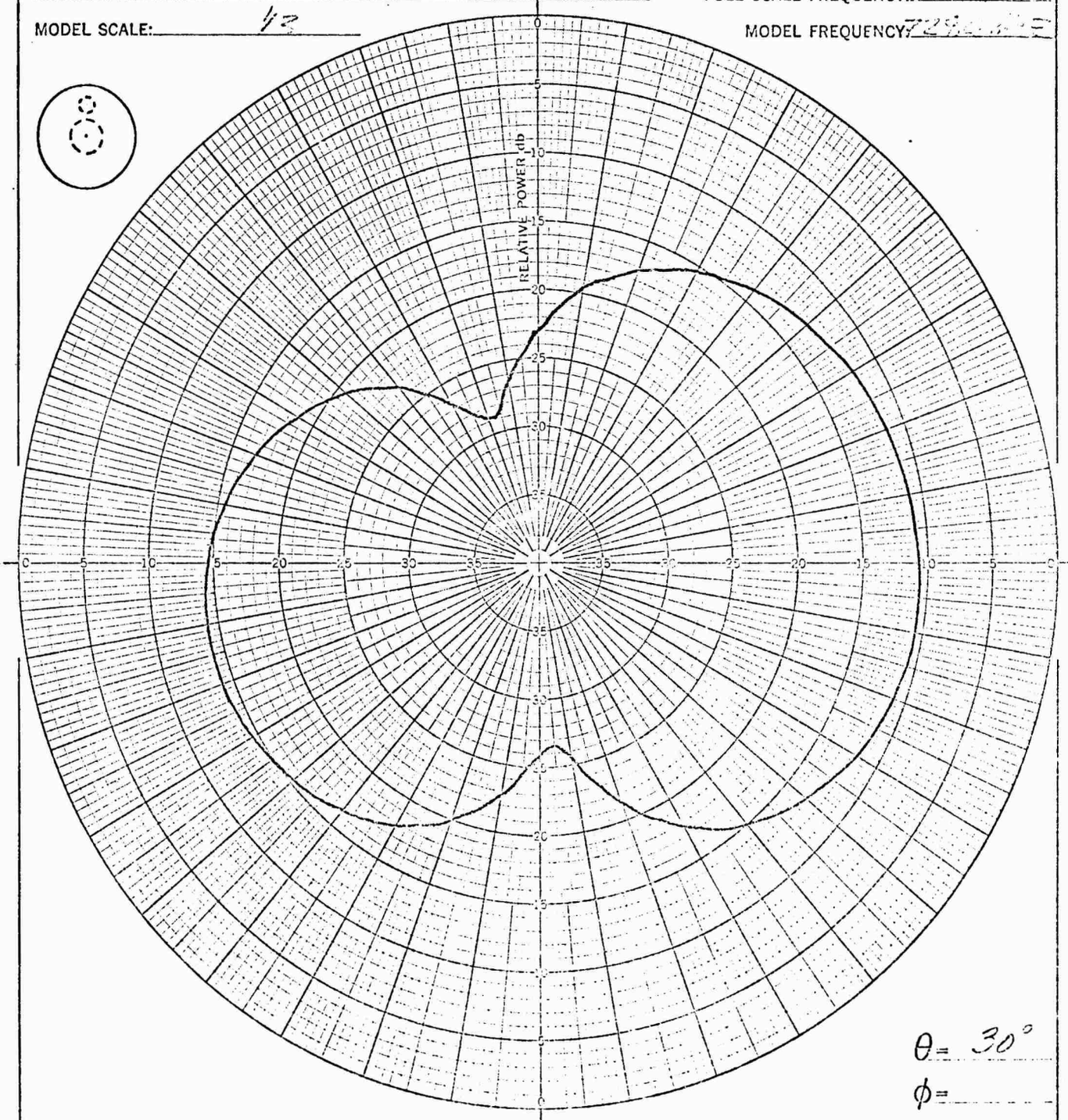
McDONNELL
ST. LOUIS, MISSOURI

PAGE 161
REPORT TR 058-ADA.03
MODEL 195B

ANTENNA: NASE STUB
ANTENNA LOCATION: NOSE
MODEL SCALE: 1/2

VEHICLE: GEMINI B
FULL SCALE FREQUENCY: 240 mc
MODEL FREQUENCY: 720 mc



θ = 30°
φ =

CONFIGURATION: II

INTEGRATOR COUNT: 06.27

POLARIZATION: Eφ ✓ Eθ ☐ OTHER:

PLOTTED IN: RELATIVE POWER db

REMARKS:

TRANSMISSION DISTANCE: 20 ft

OBSERVER: DATE:

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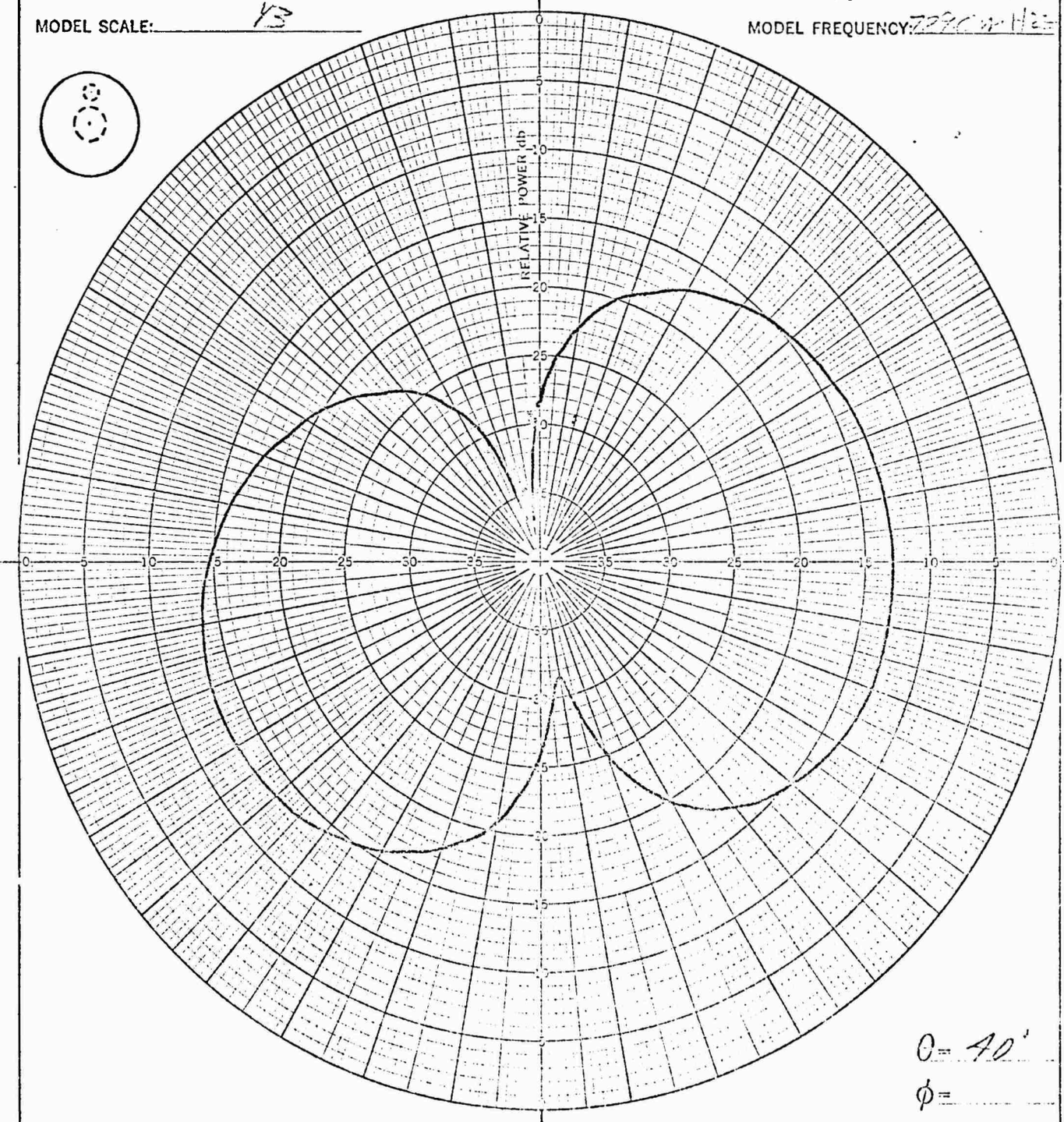
MCDONNELL
ST. LOUIS, MISSOURI

PAGE 162
REPORT TR 058-ADA.03
MODEL 195B

ANTENNA: NOSE STUD
ANTENNA LOCATION: NOSE
MODEL SCALE: 1/3

VEHICLE: GEMINI F
FULL SCALE FREQUENCY: 24 Gc-Hz
MODEL FREQUENCY: 7.2 Gc-Hz



θ = 40°
φ =

CONFIGURATION: XII

REMARKS:

INTEGRATOR COUNT:
POLARIZATION: Eφ [—] Eθ [ ] OTHER:
PLOTTED IN: RELATIVE POWER db
TRANSMISSION DISTANCE:
OBSERVER: DATE:

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MODEL 195B

ANTENNA: NOSE STUB

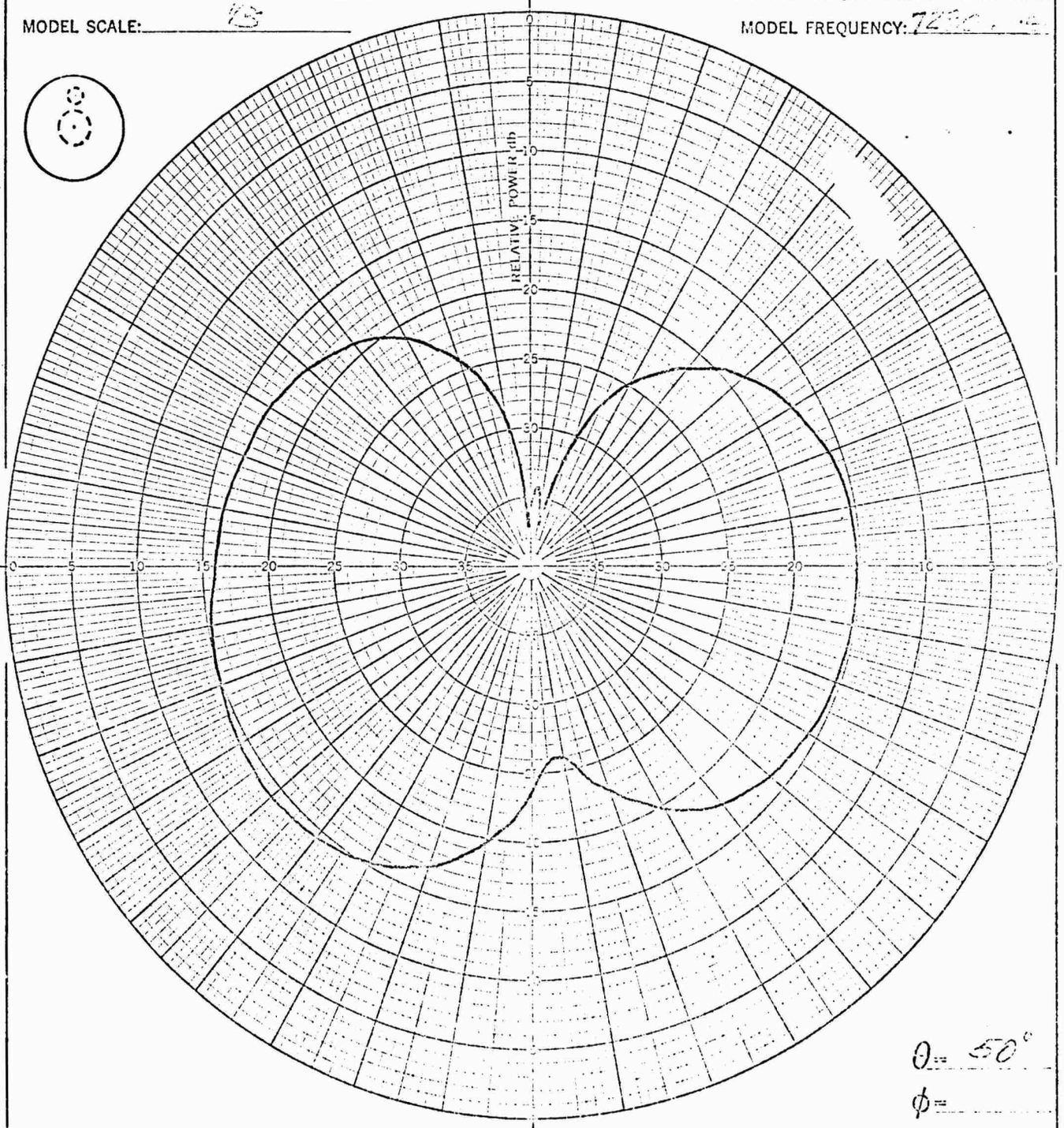
ANTENNA LOCATION: NOSE

MODEL SCALE: 13

VEHICLE: GEMINI

FULL SCALE FREQUENCY: 24 CMC

MODEL FREQUENCY: 7200 MC



θ = 50°

φ =

CONFIGURATION: A

REMARKS:

INTEGRATOR COUNT: 12350

POLARIZATION: Eφ ✓ Eθ [ ] OTHER:

PLOTTED IN: RELATIVE POWER db

TRANSMISSION DISTANCE: 20 ft

OBSERVER: [illegible] DATE: [illegible]

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PAGE 164

REPORT TR 058-ADA.03

MODEL 195B

ANTENNA: NOSE STUB

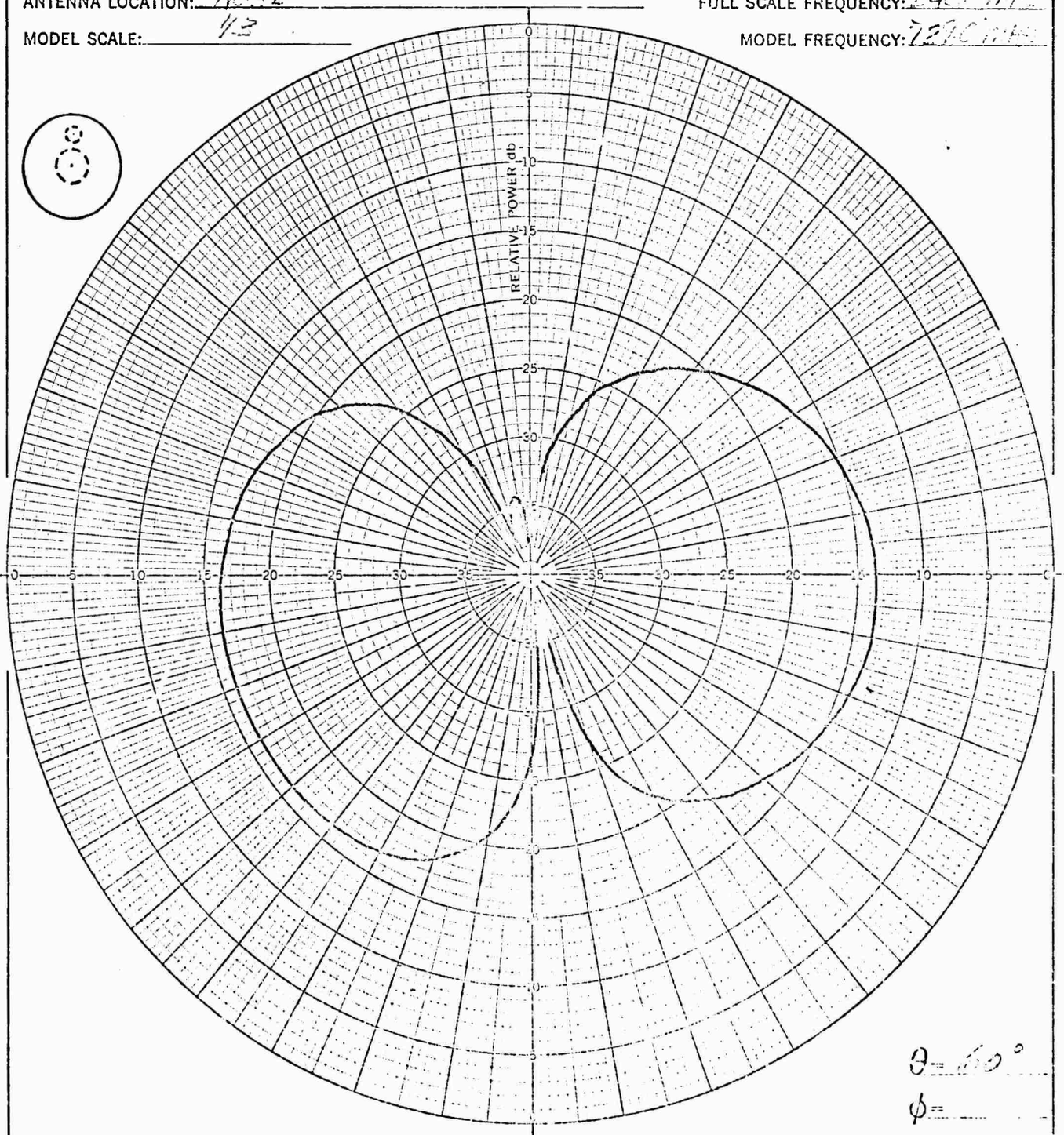
ANTENNA LOCATION: NOSE

MODEL SCALE: 1/3

VEHICLE: BEAM 3

FULL SCALE FREQUENCY: 248 mc

MODEL FREQUENCY: 744 mc



θ = 60°

φ =

CONFIGURATION: Fi

REMARKS:

INTEGRATOR COUNT: 0302

POLARIZATION: Eφ [✓] Eθ [ ] OTHER:

PLOTTED IN: RELATIVE POWER db

TRANSMISSION DISTANCE: 2 1/2

OBSERVER: [illegible] DATE: 2-[illegible]

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ST. LOUIS, MISSOURI

PAGE 165

REPORT TR 058-ADA.03

MODEL 195B

ANTENNA: NOSE STUB

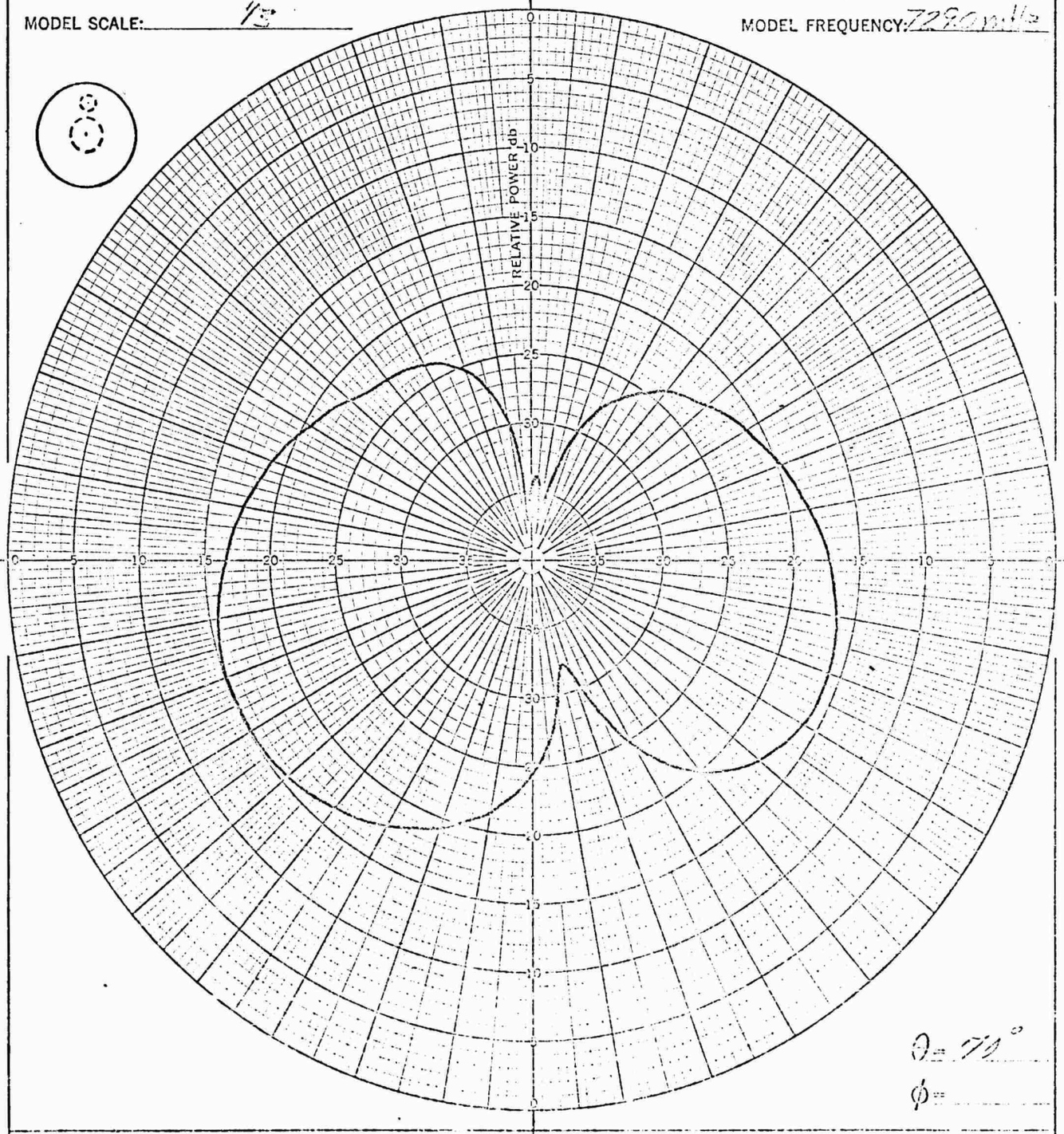
ANTENNA LOCATION: NOSE

MODEL SCALE: 1/3

VEHICLE: GEMINI B

FULL SCALE FREQUENCY: 240 mHz

MODEL FREQUENCY: 720 mHz



CONFIGURATION: 7M

INTEGRATOR COUNT: 0213

POLARIZATION: Eϕ [ ] Eθ [ ] OTHER:

PLOTTED IN: RELATIVE POWER db

REMARKS:

TRANSMISSION DISTANCE:

OBSERVER: [illegible] DATE: [illegible]

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MCDONNELL
ST. LOUIS, MISSOURI

PAGE 166

REPORT TR 058-ADA,C3

MODEL 195B

ANTENNA: NOSE STUB

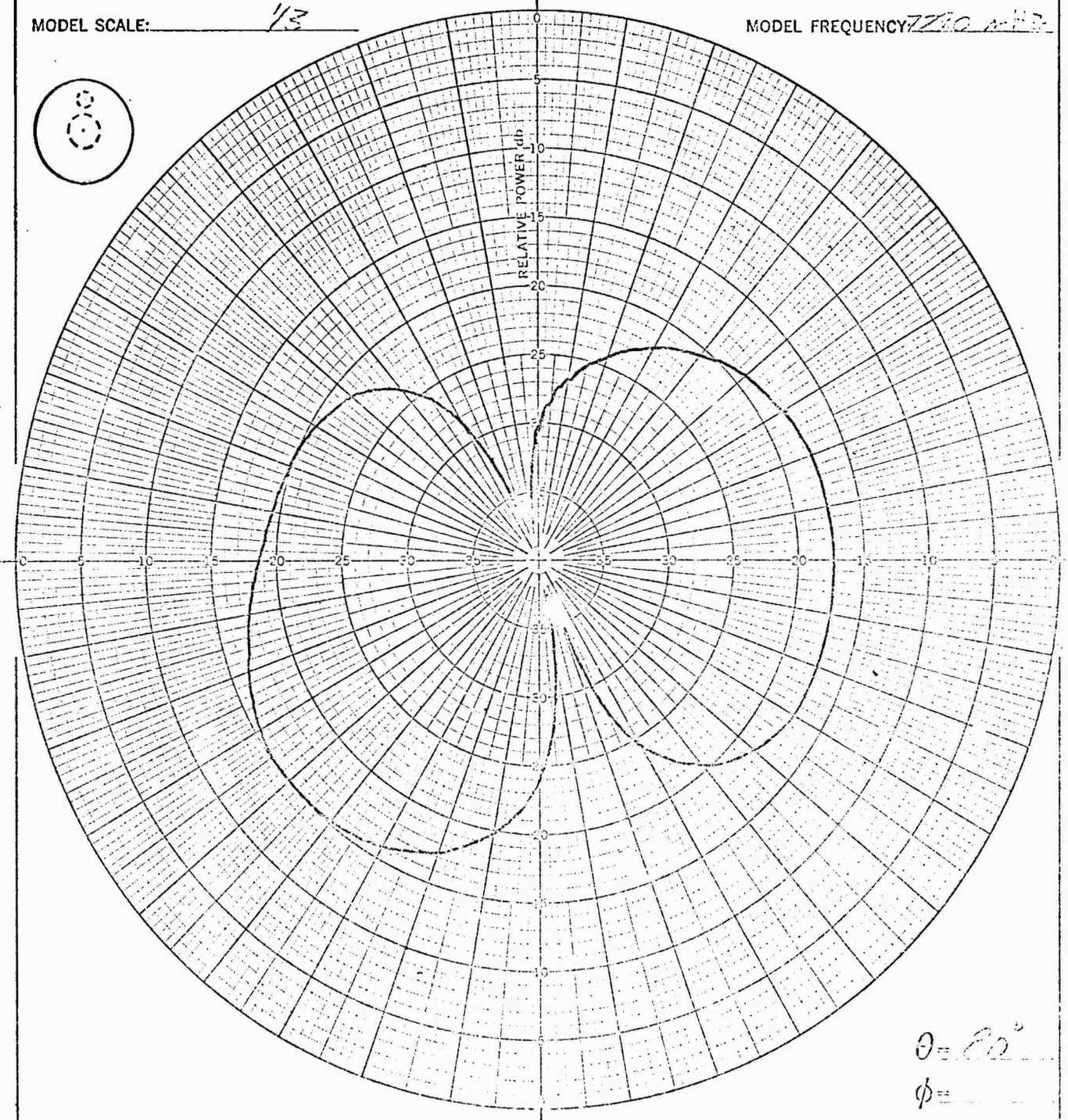
ANTENNA LOCATION: NOSE

MODEL SCALE: 1/3

VEHICLE: GEMINI B

FULL SCALE FREQUENCY: 240 mc

MODEL FREQUENCY: 720 mc



CONFIGURATION: XII

REMARKS:

INTEGRATOR COUNT: 0227

POLARIZATION: Eφ [✓] Eθ [ ] OTHER:

PLOTTED IN: RELATIVE POWER db

TRANSMISSION DISTANCE: 20 ft

OBSERVER: [illegible] DATE: [illegible]

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PAGE 167

REPORT TR 058-ADA.03

MODEL 195B

ANTENNA: NCSF STUB

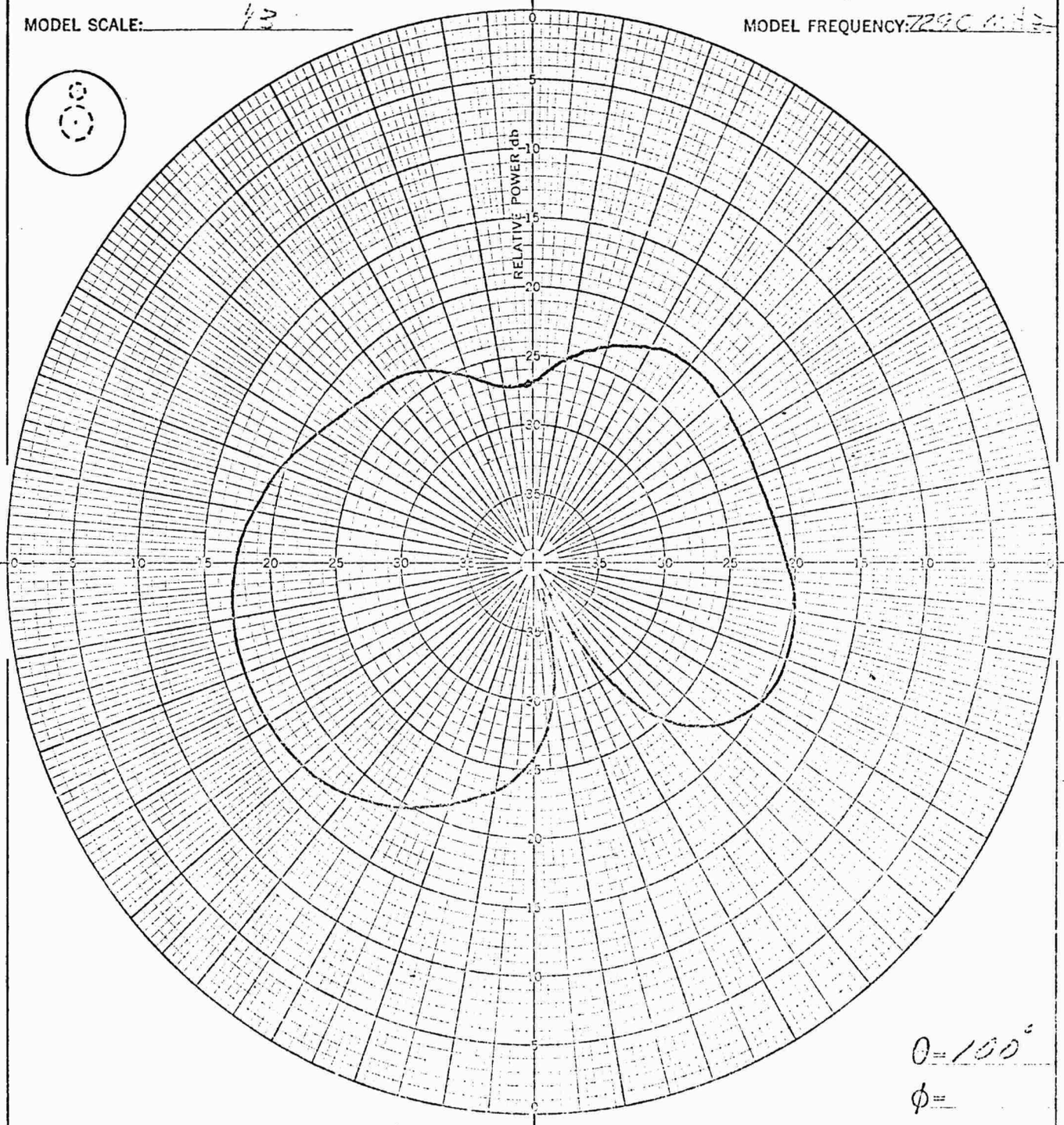
ANTENNA LOCATION: NCSF

MODEL SCALE: 1/2

VEHICLE: GEMINI E

FULL SCALE FREQUENCY: [illegible]

MODEL FREQUENCY: [illegible]



θ = 100°

φ =

CONFIGURATION: ALL

REMARKS:

INTEGRATOR COUNT: 1

POLARIZATION: Eφ [X] Eθ [ ] OTHER:

PLOTTED IN: RELATIVE POWER db

TRANSMISSION DISTANCE: [illegible]

OBSERVER: [illegible] DATE: [illegible]

DATE _____

REVISED _____

REVISED _____

MCDONNELL
ST. LOUIS, MISSOURI

PAGE 168

REPORT TR 058-ADA.03

MODEL 195B

ANTENNA: NOSE STUB

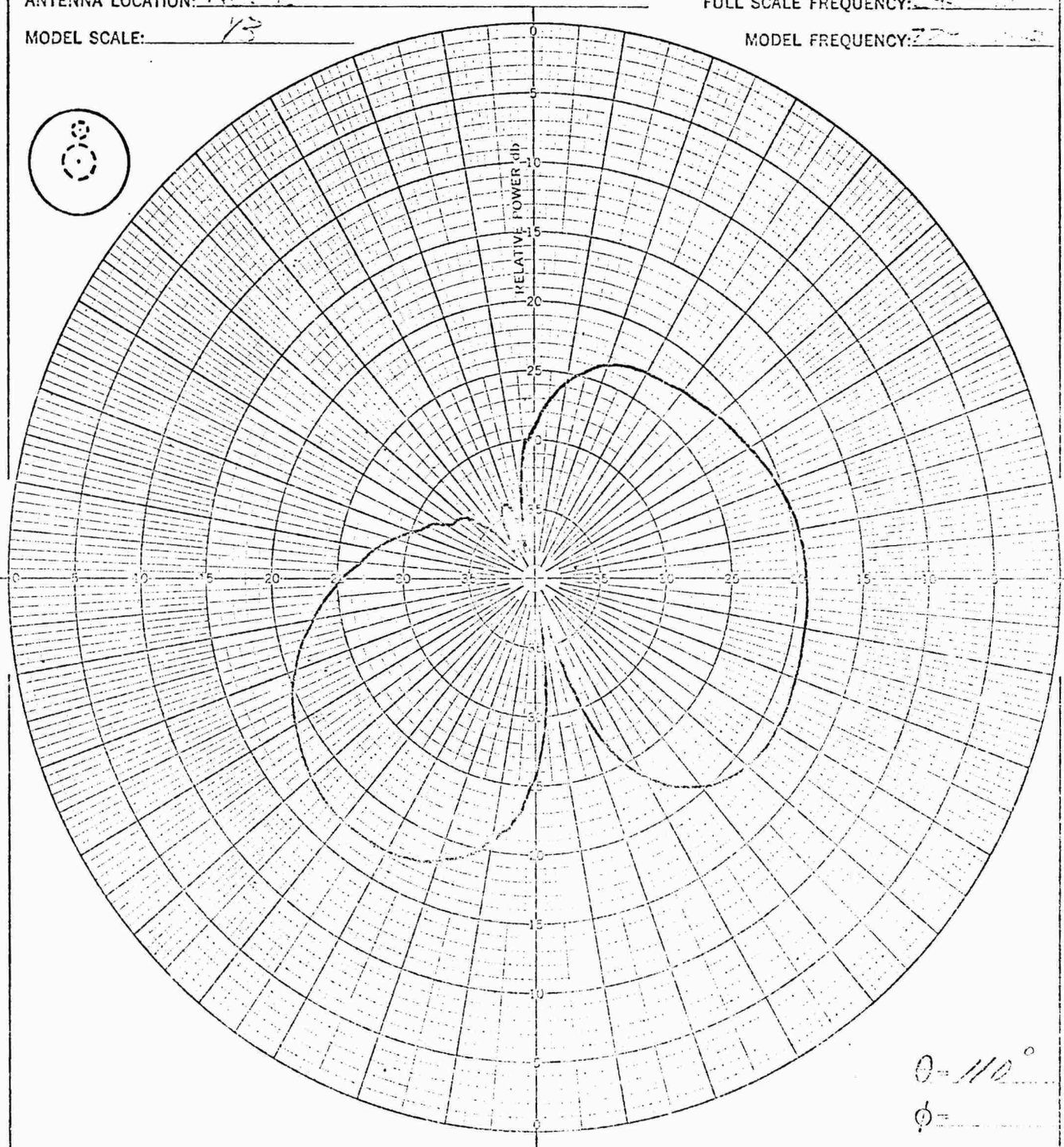
VEHICLE: GEMINI

ANTENNA LOCATION: NOSE

FULL SCALE FREQUENCY: [illegible]

MODEL SCALE: 1/2

MODEL FREQUENCY: [illegible]



θ = 0-110°

φ = _____

CONFIGURATION: [illegible]

INTEGRATOR COUNT: 0121

POLARIZATION: Eφ [ ] Eθ [ ] OTHER:

PLOTTED IN: RELATIVE POWER db

REMARKS:

TRANSMISSION DISTANCE: [illegible]

OBSERVER: [illegible] DATE: [illegible]

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PAGE 169

REPORT TR 058-ADA.03

MODEL 1953

ANTENNA:

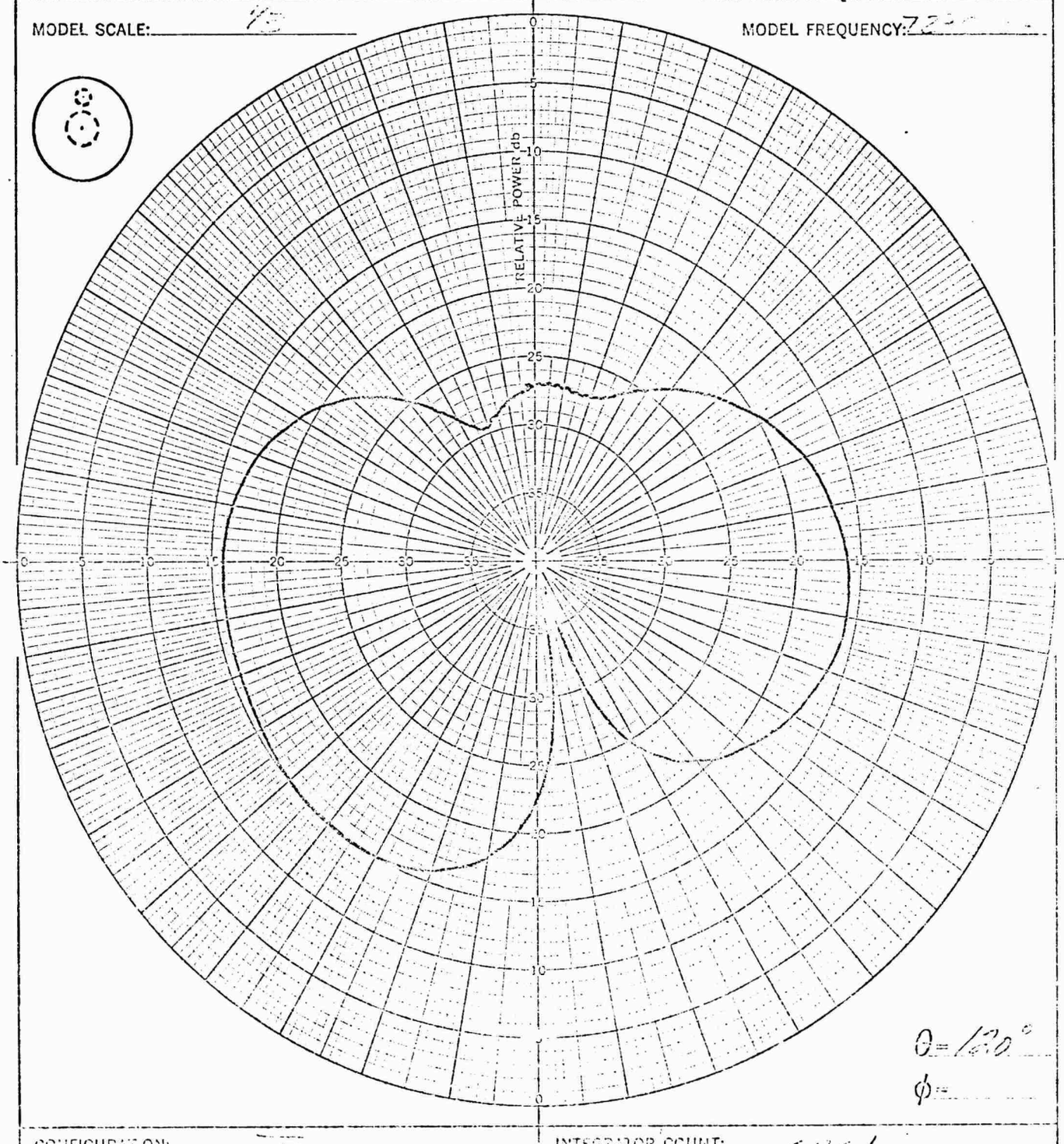
VEHICLE:

ANTENNA LOCATION:

FULL SCALE FREQUENCY:

MODEL SCALE:

MODEL FREQUENCY:



θ = 180°

φ =

CONFIGURATION:

INTEGRATOR COUNT:

POLARIZATION: Eφ [X] Eθ [ ] OTHER:

PLOTTED IN: RELATIVE POWER db

REMARKS:

TRANSMISSION DISTANCE:

OBSERVER: DATE:

DATE

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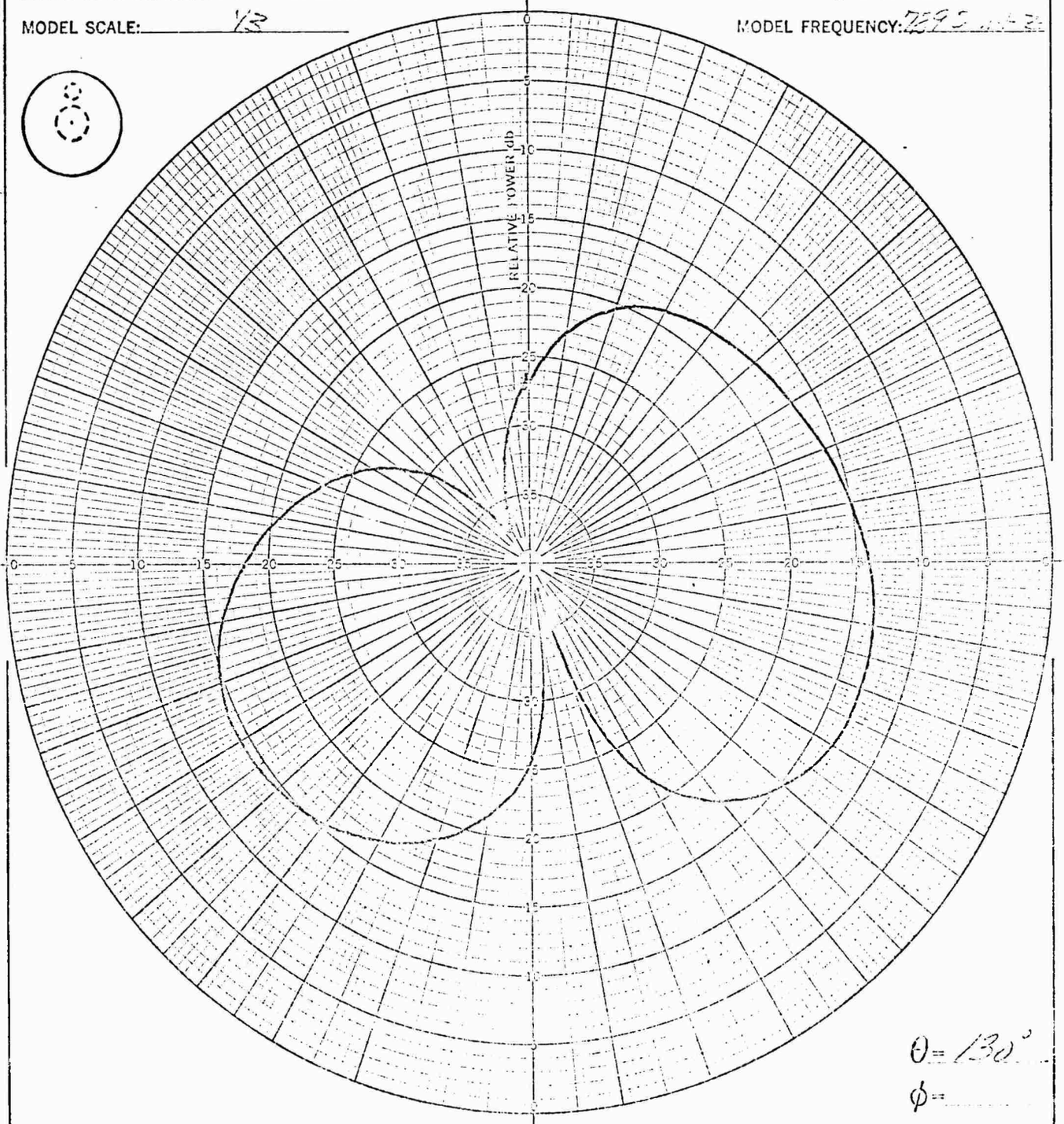
MCDONNELL
ST. LOUIS, MISSOURI

PAGE 170
REPORT TR 058-ADA.03
MODEL 195B

ANTENNA: NOSE STUB
ANTENNA LOCATION: NOSE
MODEL SCALE: 1/8

VEHICLE: GEMINI
FULL SCALE FREQUENCY:
MODEL FREQUENCY:



θ = 180°
φ =

CONFIGURATION: XII

INTEGRATOR COUNT: 0337

POLARIZATION: Eφ ✓ Eθ [ ] OTHER:

PLOTTED IN: RELATIVE POWER db

REMARKS:

TRANSMISSION DISTANCE:

OBSERVER: DATE:

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PAGE 171

REPORT TR 058-ADA.03

MODEL 195B

ANTENNA: NOSE STUB

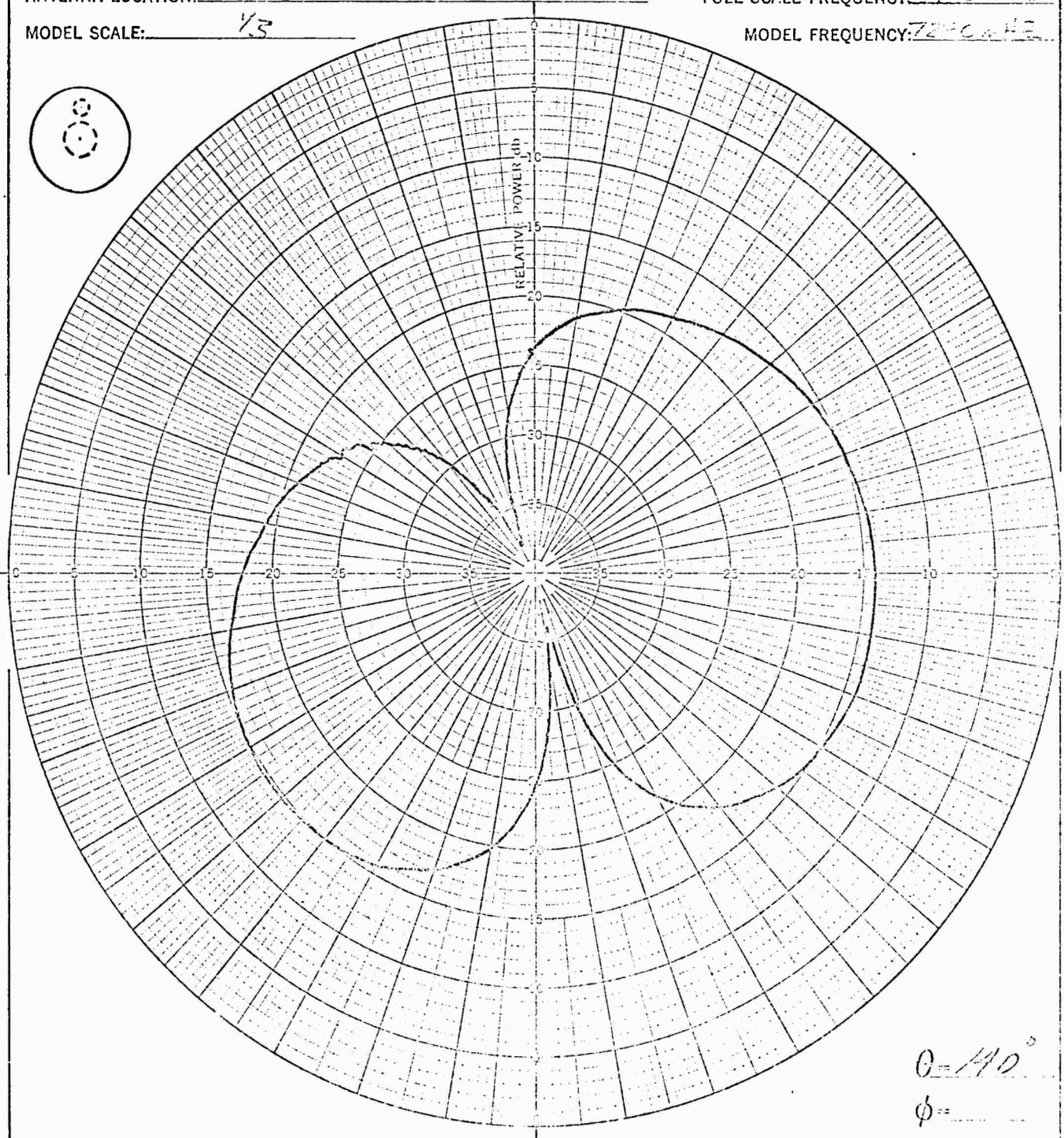
ANTENNA LOCATION: NOSE

MODEL SCALE: 1/5

VEHICLE: GEMINI

FULL SCALE FREQUENCY: 240 mc

MODEL FREQUENCY: 72 mc



θ = 40°

φ =

CONFIGURATION: XII

INTEGRATOR COUNT: 0.5 DB

POLARIZATION: Eφ ✓ Eθ OTHER:

PLOTTED IN: RELATIVE POWER db

REMARKS:

TRANSMISSION DISTANCE: 50 ft

OBSERVER: [illegible] DATE: [illegible]

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ST. LOUIS, MISSOURI

PAGE 172

REPORT TR 058-ADA,03

MODEL 195B

ANTENNA: NOSE STUB

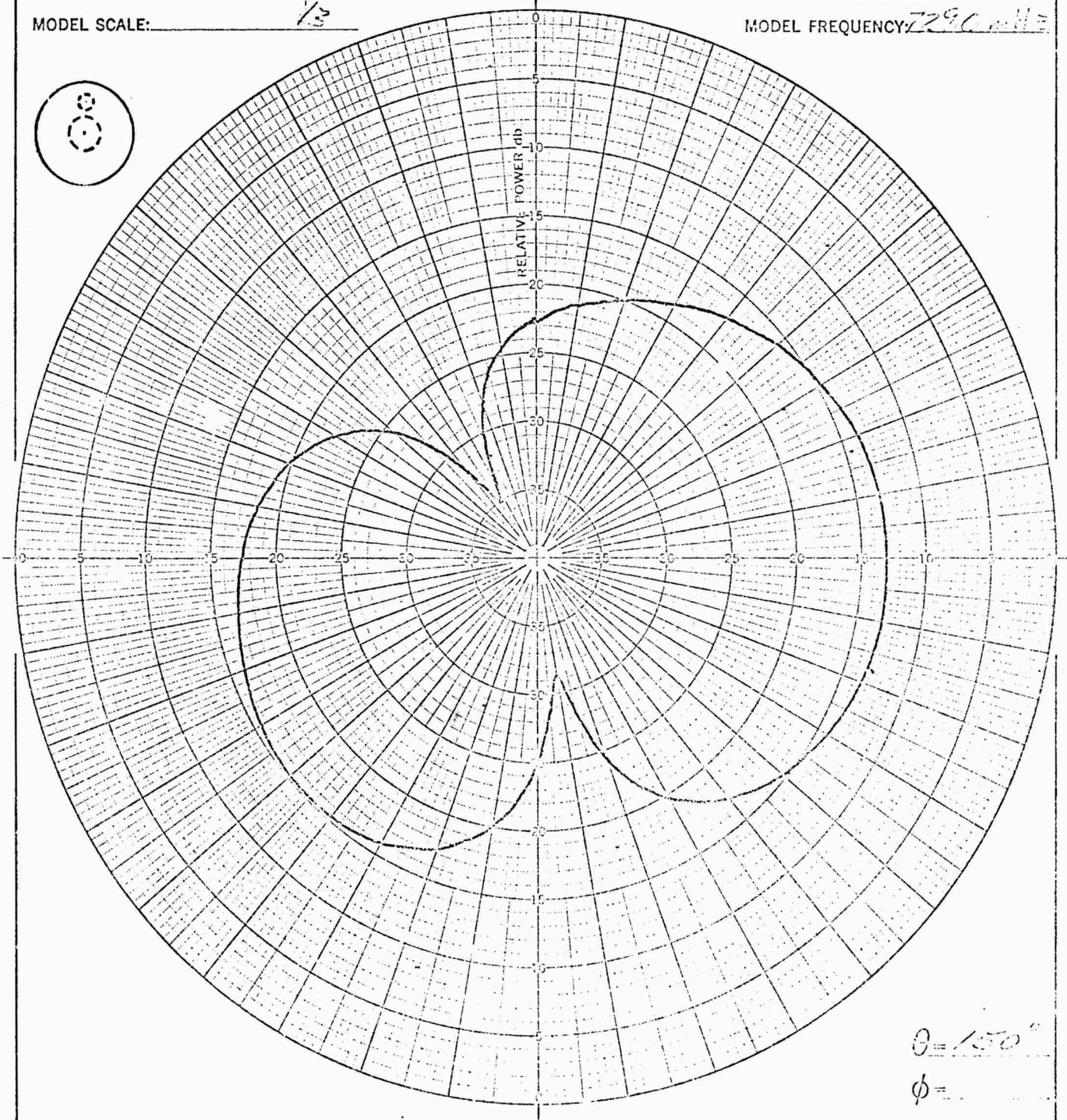
ANTENNA LOCATION: NOSE

MODEL SCALE: 1/3

VEHICLE: GEMINI B

FULL SCALE FREQUENCY: 240 mc

MODEL FREQUENCY: 720 mc



CONFIGURATION: VII

INTEGRATOR COUNT: 0375

POLARIZATION: Eφ [✓] Eθ [ ] OTHER:

PLOTTED IN: RELATIVE POWER db

REMARKS:

TRANSMISSION DISTANCE:

OBSERVER: DATE:

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MCDONNELL
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PAGE 173

REPORT TR 058-ADA.03

MODEL 195B

ANTENNA: NOSE STUB

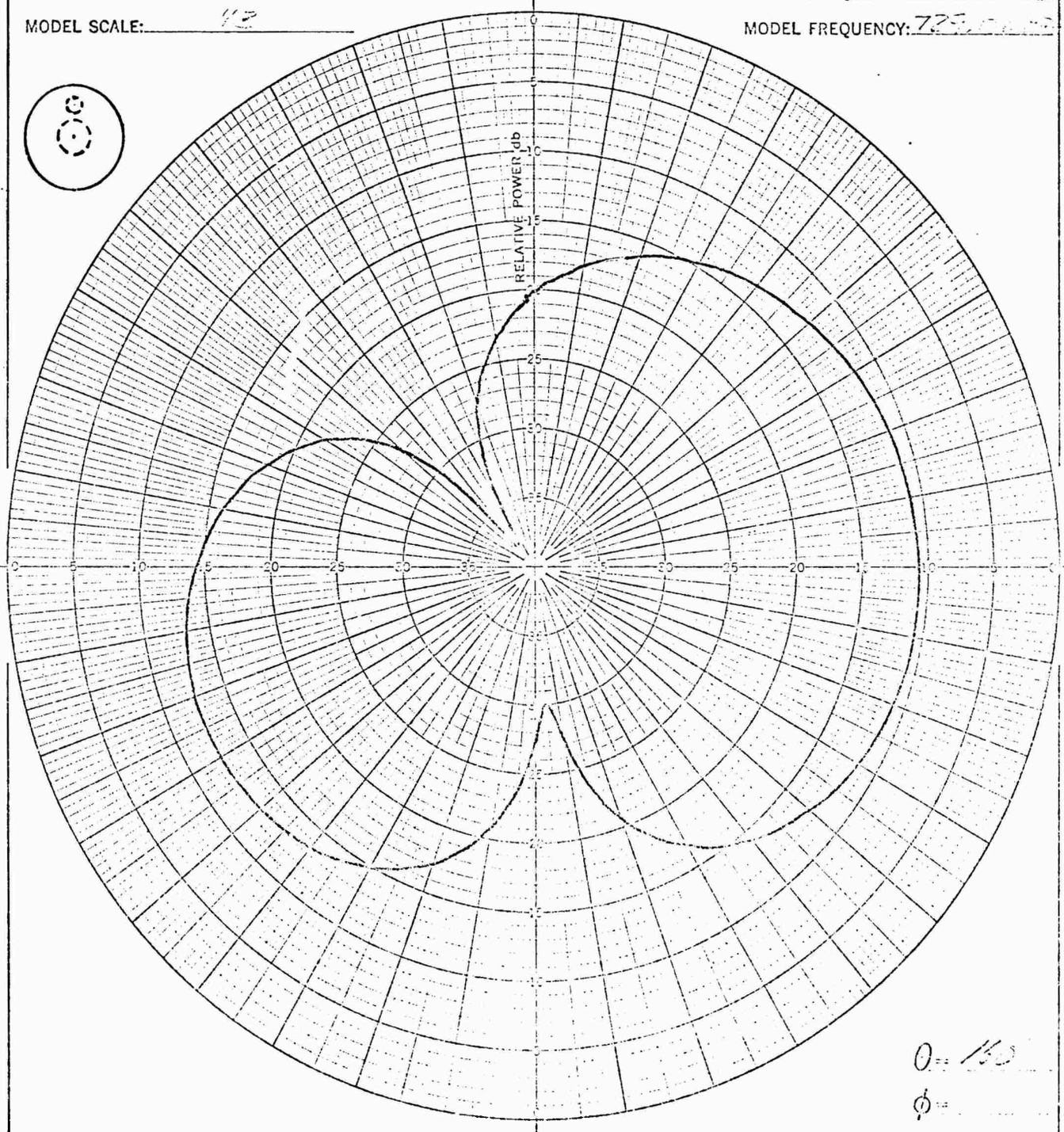
VEHICLE: [illegible]

ANTENNA LOCATION: NOSE

FULL SCALE FREQUENCY: [illegible]

MODEL SCALE: 1/2

MODEL FREQUENCY: [illegible]



θ = 180

φ =

CONFIGURATION: VT

INTEGRATOR COUNT: 0710

POLARIZATION: Eφ ✓ Eθ [ ] OTHER:

PLOTTED IN: RELATIVE POWER db

REMARKS:

TRANSMISSION DISTANCE: [illegible]

OBSERVER: [illegible] DATE: [illegible]

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PAGE 174

REPORT TR 058-ADA.03

MODEL 195B

ANTENNA: NOSE STUB

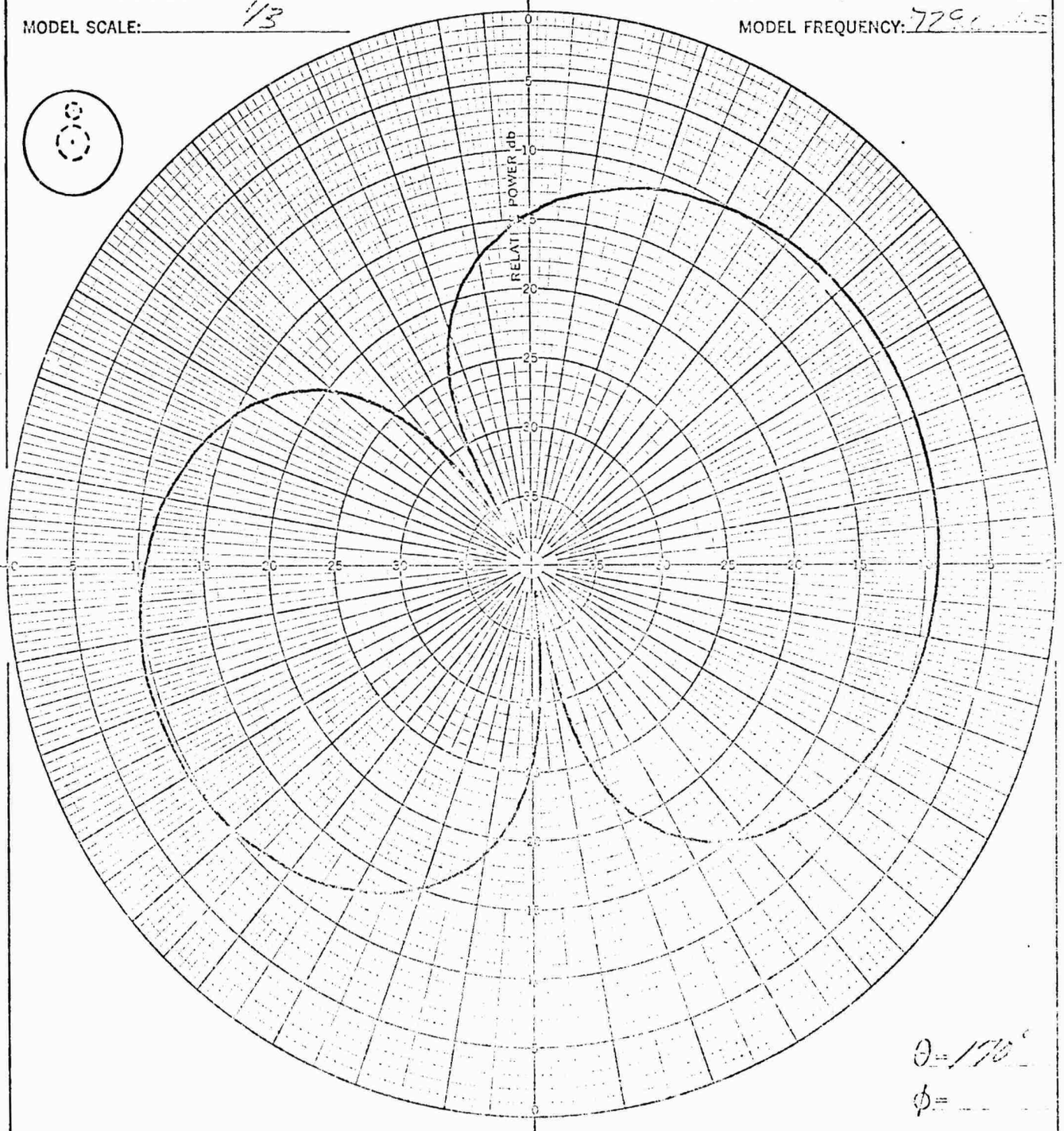
ANTENNA LOCATION: NOSE

MODEL SCALE: 1/3

VEHICLE: GEMINI

FULL SCALE FREQUENCY:

MODEL FREQUENCY:



CONFIGURATION: 71

INTEGRATOR COUNT: 1300

POLARIZATION: Eφ Eθ OTHER:

PLOTTED IN: RELATIVE POWER db

REMARKS:

TRANSMISSION DISTANCE:

OBSERVER: DATE:

DATE

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MCDONNELL
ST. LOUIS, MISSOURI

PAGE 175

REPORT TR 058-ADA.03

MODEL 195B

ANTENNA: NOSE SLOT

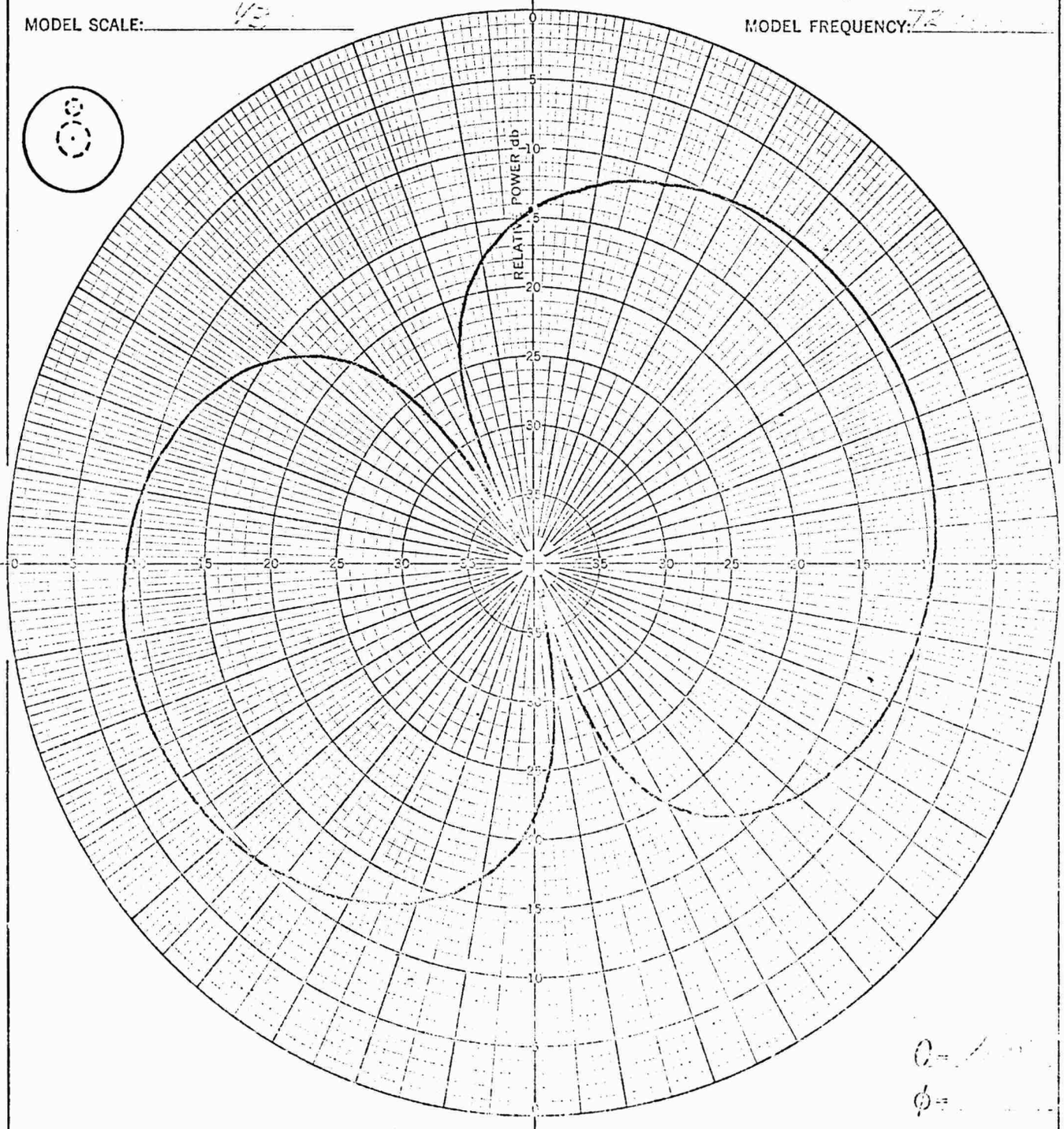
ANTENNA LOCATION: NOSE

MODEL SCALE: 1/8

VEHICLE:

FULL SCALE FREQUENCY:

MODEL FREQUENCY:



θ =

φ =

CONFIGURATION:

REMARKS:

INTEGRATOR COUNT:

POLARIZATION: Eφ [✓] Eθ [ ] OTHER:

PLOTTED IN: RELATIVE POWER db

TRANSMISSION DISTANCE:

OBSERVER: DATE:

ISOTROPIC CALCULATION

I_2 = Count for calibration radius = 10,000

$K = \frac{2}{\pi} = 0.63662$ $\quad KI_2 = 6366.2$

For Electronic Integrator and db Recording

$\frac{KI_2}{I_1}$ = Power Ratio $\quad$ 10 Log_{10} Power Ratio = Istropic db below calibration level

A = Integrator Count $\quad$ Recorder Chart Level for calibration **-3 db**

CONFIGURATION III

sin θ	θ	A_θ Pol.	A_ϕ Pol.	A_θ Pol.	A_ϕ Pol.	θ
0.17365	10°	0857	0537	5088	1300	170°
0.34202	20°	2108	0579	7848	0710	160°
0.50000	30°	3611	0627	5646	0375	150°
0.64279	40°	3285	0495	6434	0338	140°
0.76604	50°	4647	0350	3060	0337	130°
0.86603	60°	4557	0302	3116	0261	120°
0.93969	70°	6129	0218	1758	0121	110°
0.98481	80°	3575	0227	3425	0149	100°
1.00000	90°	5618	0138			

$\sum_{180}^{0} (A_\theta \sin\theta + A_\phi \sin\theta)$ 58514.25 ÷ 18 = I_1 3113.11

$\frac{6366.2}{I_1}$ = Power Ratio 2.03

Isotropic = 10 Log_{10} Power Ratio = 3.05 db Below calibration level

Isotropic Chart Level = -6.05 db

W/F...